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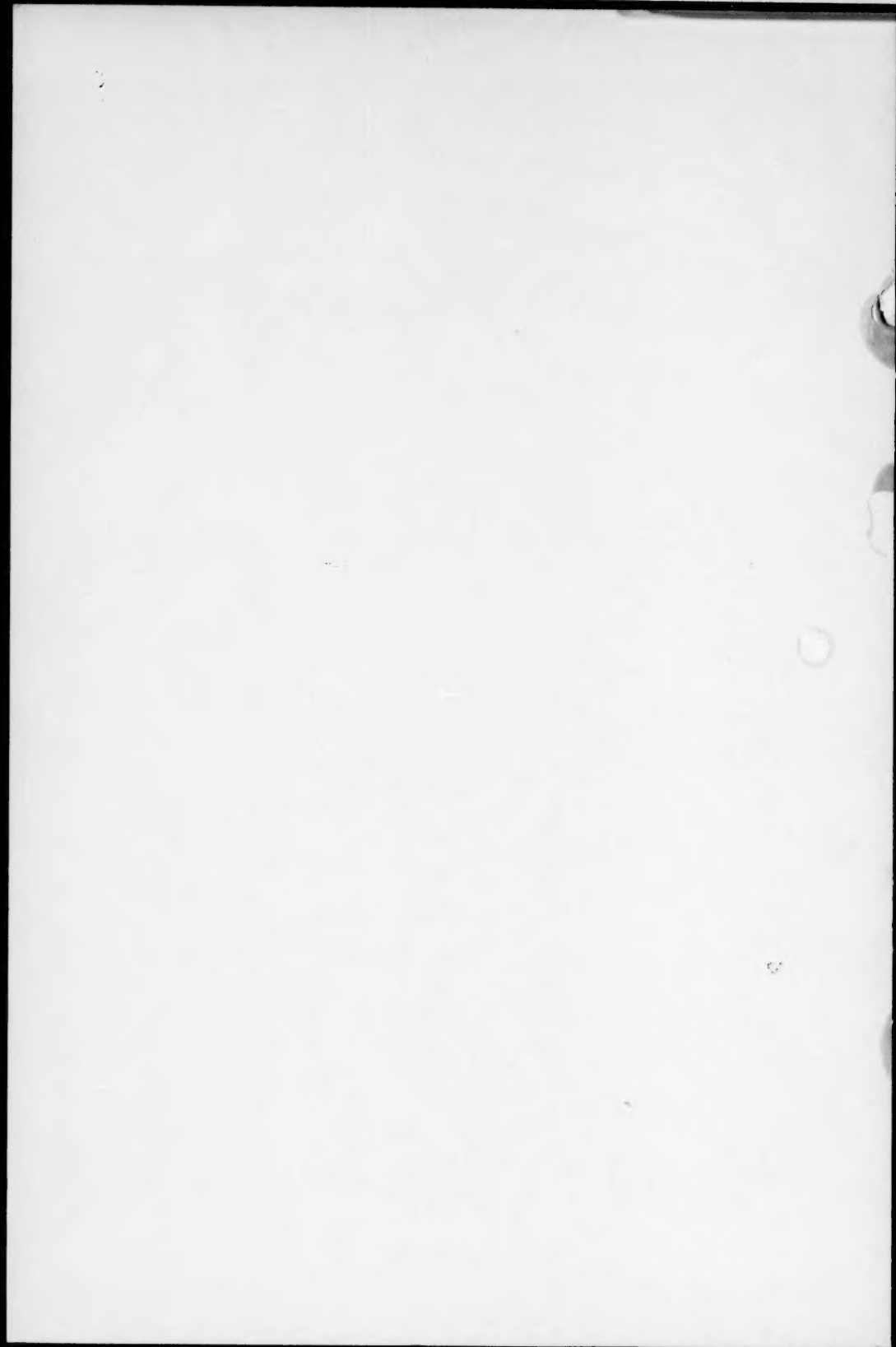
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NECROPHILIA, BRIEF REVIEW AND CASE REPORT*

BY FRANKLIN S. KLAF, M.D., AND WILLIAM BROWN, M.D.

Necrophilia, morbid sexual attraction to corpses, has been only occasionally described in psychiatric literature. Nevertheless, the perversion seems to have been known since antiquity. Brill¹ quotes Herodotus, who mentions that in ancient Egypt, to discourage carnal intercourse with the corpses, deceased women of great beauty were not given to embalmers until they had been dead three or four days. Brill also wrote that the church had an interdict forbidding such acts. Inhibited forms of necrophilia and necrophilic fantasies may occur more commonly than is generally realized. The present case report, for example, is about a patient who satisfied a long-compelling interest in the dead by working as an undertaker's assistant and indulging in daydreams of sexual contact with the female bodies.

Among early psychiatric writers on the subject, Krafft-Ebing² called the perversion a horrible manifestation of sadism, but Moll³ objected because no actual pain is caused. He called it a variety of *algolagnia* (abnormal and distorted activity of sexual impulse toward persons of opposite sex with a desire for experiencing or causing pain). These authors agreed in considering the cause to be some congenital defect. Wulffen⁴ divided necrophilia into three types: *lust murder* in which murder precedes the sexual act with the corpse; *necrostuprum* in which the corpse is stolen; *necrophagy* in which the corpse is mutilated and parts of it eaten.

In modern times, Jones,⁵ influenced by Freud's paper on "Mourning and Melancholia," described two varieties of necrophilias. The first, called inhibited necrophilia, "is little more than an extension of the part played by love in mourning." He cites the ancient morbid custom of husbands clinging to their dead wives and often engaging in sexual relations with them. The second type includes all overt necrophilic gratifications such as the sex act, biting, tearing or devouring; and it represents a "reversion to the most primitive aspects of sadism of oral and anal kind." The case of Sgt. Bertrand is cited by Bonaparte.⁶ Bertrand was convicted of mutilation of female cadavers in cemeteries. He and Ardisson, the "Vampire of Mui" mentioned by Krafft-Ebing,² belong to the

*From the psychiatry and neurology service, Veterans Administration Hospital, Bronx, N. Y.

second class of overt necrophiliacs. Kronfeld, quoted by Rauch,⁷ considered pseudonecrophilia (erotic fantasies or masturbation but no actual sexual contact with the corpse) to be a substitute for the sex act in the mentally ill.

Previously Reported Cases

With Sgt. Bertrand and with Ardisson there was actual sexual intercourse with the dead. Ardisson also showed preference for morbid oral contact; when questioned about one episode, he replied, "I recall having sucked the nipples of that woman like a child does his mother." Tsheryaskin's⁸ patient was a 19-year-old girl who had tortured animals as a child and obtained sexual gratification by sticking pins into her skin, cutting herself with a razor and taking courses in anatomy for the opportunity of dissecting cadavers. The girl's family showed severe constitutional defect. Brill^{1,9} treated two patients with necrophilia. One was a homosexual who had served a term in prison for sending love letters to a man; he had worked as an undertaker's assistant and had gratified himself by performing fellatio with the corpses, a circumstance which Brill related to fellatio with a cousin at the age of three. The second case was a 32-year-old operator of a newsstand, blind since the age of four; he had morbid desires to obtain the bodies of dead humans or animals and mutilate, wallow in, or eat them; he enjoyed drinking blood or human secretions and had fantasies of biting female breasts; he described his penis as a tube and masturbated to calm his craving for carrion. Rapoport¹⁰ reported the case of a 50-year-old man who was arrested when found kissing the lips and touching the breasts of a female corpse; his necrophilic activity began six years after the death of his mother; he cut out death notices, preferring the obituaries of middle-aged or elderly women; he had had no heterosexual experiences and had limited his contacts with cadavers to kissing and fondling, after which he would masturbate in a men's room or at home. He had strong desires to be a morgue attendant because, "It would satisfy me; if I couldn't see corpses, I might lose control."

Bonaparte⁶ regards Edgar Allan Poe as an example of inhibited necrophilia. Poe's attachments to dying women, his preoccupation with horror and death are ascribed to a powerful unconscious fixation to his consumptive mother who died during his infancy.

According to Bonaparte, Poe spent his life in external mourning for his dying mother, suffering the "terror and temptation of incest," his sexual activity representing "fidelity in infidelity."

Rauch⁷ cites a number of examples of necrophilia gathered from French and German court records: A 24-year-old epileptic, a quiet, detached, stolid person with no abnormal ideation, used to have fantasies of naked women. He wanted sex relations with a corpse but was fearful of contagion. He would enter cemetery chapels seeking female corpses. Finding one, he would put it on the ground and then masturbate but would have no sexual contact with the body. On one occasion, he did insert his finger in the vagina of a corpse. His morbid sexual acts were not related to his seizures. The court records gathered by Rauch include instances of post-mortem defloration of adolescent girls by a monk, by a gardener and by a caretaker. The knowledge that death in many cases was caused by contagious disease was not a deterring factor with most necrophiles.

Report of Case

The patient is a 40-year-old married Negro, the father of five children. He was discharged from the army in 1943 after eight months of service, because he showed acute schizophrenic symptoms, including paranoid thinking, auditory hallucinations, depression, emotional instability, dissociated states and multiple phobias, the most troublesome of which was the fear that pigeons would attack him. He returned to his wife, to whom he had been married two weeks after his induction into the army; but he became increasingly withdrawn and disturbed by hallucinations and by episodes of dissociation and depersonalization. He wandered about a good deal. He worked intermittently and changed jobs often; sometimes he went for months without employment.

He frequented funeral parlors, where he found peace and quiet, but he could not escape the fear of pigeons, the mere sight of which continued to be terrifying. At home he had unprovoked outbursts of rage, abusing his wife and children; he became fearful that he might kill his children, particularly a four-and-one-half-year-old daughter. He contemplated suicide. In 1948 he received psychotherapy at a Veterans Administration mental hygiene clinic; and in 1949 a course of insulin coma therapy was given at the Veterans Administration Hospital, Bronx, N. Y. Considerable improvement resulted, and he resumed treatment at the mental hygiene clinic.

He became the proprietor of a small newsstand, but he spent seven hours each day walking 14 miles to and from work because he was fearful of riding on subways. He was readmitted to the Bronx Veterans Administration Hospital in July 1956 after an attempt at suicide by taking an overdose of sleeping pills. On this occasion he had the feeling of being shut off from people; there was unacceptable homosexual ideation with anxiety and depression. A course of insulin coma therapy once more proved beneficial; his symptoms subsided and his outlook became brighter. The "tranquilizing" drugs were of no help; indeed they deepened the depression and added to his worries by causing sexual impotence.

His interest in the dead began at nine when he assisted in the local funeral parlor. "I liked to fool around with the dead bodies even though I never got paid for it." He was interested in the embalming process. Later he enjoyed drawing blood from the bodies and took artistic pride in making restorations where death was caused by disfiguring accident or disease. With considerable enthusiasm, he told of how pleasurable it had been for him to stitch back the head of a beautiful girl who had been decapitated. He liked working with corpses because "if you made a mistake, there were no complaints." Although he denied erotic interest in the dead, information obtained during sodium amytal interviews proved otherwise. Under the influence of the drug he related that he was sexually attracted to female corpses. On some occasions he would hug the dead bodies or run home to masturbate while thinking of the corpse as if it were alive; or during sexual intercourse he would in imagination substitute the corpse for his wife.

The onset and progress of rigor mortis had a peculiar fascination for him. He thought the postures and expressions assumed by the corpse during rigor mortis gave evidence of the personality of the live person. "The best part of the funeral is when dirt is thrown on the coffin. I like that hollow sound as if there is nothing inside. When you're dead, you're dead—there is no here-after." He sought permission repeatedly to assist in the hospital morgue. He received a pass to attend the funeral of his niece who had been killed in a fall from a building. He left, anxious and irritable; he returned, calm and sociable, quite relaxed. That night he dreamed of meeting an acquaintance of his sister's on the

street, marrying her, then bending over her coffin and seeing the coffin rise to heaven.

The patient was born in New York City, the youngest of five children. He was a sickly infant and a frail, undernourished child, who had to be placed in special health classes at school. There were no traits of mental abnormality in childhood except that he had the habit of eating ashes. He completed the eighth grade in elementary school; there was no delinquent or psychopathic behavior. His intelligence was above average; psychological tests showed his IQ to be 115. Heterosexual experiences began at 11; he masturbated until 16; sexual difficulties, homosexuality and other perversions were all denied.

The boy's father was a feared and stern figure who beat his children on their wet skin to make the blows more painful. The mother was a generally absent and shadowy figure who was described as an "operative star." The patient spoke of her only in warm, endearing terms. "Her favorite role was Madame Butterfly." The grandmother and the oldest sister exercised the effective maternal influence and discipline at home. The former was both strict and seductive, fomenting much sibling rivalry. At one time, the patient was her favorite, but later he was the target of her neglect and abuse. He recalled vividly her saying to him, "I never want you to see me again, even to look at my dead face."

His course in the hospital was one of slow but steady improvement. Insulin coma therapy (40 comas) and the continuous psychotherapy that followed were the most useful beneficial measures. His anxiety and phobias decreased but he still retained an abhorrence of pigeons. The hospital helped find a job for him and he was discharged 12 months after admission. He still hoped to become an employee in a mortuary.

DISCUSSION

Krafft-Ebing and other early writers related necrophilia to constitutional defect. Brill,^{1,9} agreed with this conclusion. A review of the literature indicates that necrophiles were frequently mentally defective, or epileptic, or had serious, lifelong personality disorders. Court records show that most necrophiles were not considered psychotic and were adjudged competent. The authors have found no case reported in which epileptic seizures were mentioned in connection with the etiology of necrophilia. It is clearly

evident from various case reports that a confirmed necrophile may lead, concurrently, an active heterosexual or homosexual life. As a rule, however, normal sexual activity is diminished.

The psychoanalytic literature offers opinions as to the origin of the disorder. Rapoport¹⁰ suggests that it is a means of aiding the patient in overcoming the loss of a love object, dynamically similar to the manic defense. Bonaparte⁶ points to probable quantitative constitutional factors and to qualitative factors determined by events in infancy, especially the witnessing of the primal scene, which the child interprets as a sadistic act. Later identification with the father may impel the potential necrophile to commit *lust murder*, or he may wait for the mother's death and passively succeed to postmortem possession of the body after "Death, The Great Father," has claimed the life. Jones⁵ stresses the oral and anal sadistic elements of necrophilia. Anal sadism "is indicated by the close association that is often found in the unconscious between the ideas of faeces (or the babies supposed to arise from them) and of any kind of decomposing material, particularly human corpses." Jones states that the subject of ghouls and vampires is related to the sadistic elements of necrophilia.

In the authors' patient, attraction to the dead was deeply rooted. It first showed itself at the age of nine and continued unceasingly as a strong urge. Corpses, funeral parlors and funerals gave him an unrivalled sense of satisfaction. The funeral parlor always afforded peace and contentment, a refuge from the tension and turmoil of life. His necrophilic drive never reached the stage of actual intercourse with corpses, but was limited to sexual fantasies wherein the dead came to life and loved him. His activities in the mortuary suggest those of a child playing "house." The bodies became dolls and served as objects toward which deep-seated sadistic, scopophilic and incestuous forces were directed. His enjoyment of the hollow sound made by the earth thrown on the coffin ("as if it was empty"), his feeling of "nothingness" after death, his fascination by the process of rigor mortis, his pride in the "artistic" restoration of disfigured bodies, all involve elements of sadism and mocking control of the defenseless dead.

It is possible that his interest in rigor mortis and his curiosity about various postures assumed by the corpses, as well as his desire to make perfect restorations of the bodies, are defensive wishes against the dead returning to life and taking revenge on

him. The "nothingness" after death may really conceal a hope that the dead do not return. The speculation may be offered that his dread of pigeons really represents a fear of the dead (most likely women) returning to attack him. Perhaps there is an identification with the dead as the expression of self-contempt and unworthiness. The peace and comfort offered by the funeral parlor suggest a symbolic reunion with the long-lost mother.

Deprived of a full measure of masculine independence by a harsh, critical sister, a seductive, unpredictable grandmother and an unmerciful father, he grew up shy and self-effacing. The mother alone, beautiful and talented, but usually absent, was the affectionate figure in his life. She became the object of loving fantasies; she was the only person who did not mistreat him. The dead also never complained; they never criticized; they were always calm. He found that a "dead person who loves will love forever and will never be weary of giving and receiving caresses." (Jones.³)

The authors regard the schizophrenia of the patient as an intercurrent reaction not directly arising from his necrophilia. Indeed the schizophrenic anxiety and fears caused him to seek out funeral parlors where he became calm and had a feeling of contentment and protection. The regressive phenomena of the psychosis served to bring out more clearly the deep-seated emotional relationship between the patient and the dead, particularly the powerful ambivalent feelings toward the mother.

Segal¹¹ emphasized early anxieties and deprivations at the very start of life. Deprivations severe enough to threaten the individual's very existence may engender powerful destructiveness and greed and arouse deep sadistic feelings toward the mother. Segal's patient "felt in phantasy he had emptied his mother of all life and she became the corpse; this corpse he introjected and identified with himself."

SUMMARY

The authors present a brief review of the literature on necrophilia and describe an example of inhibited necrophilia, in which the necrophilic fantasies were brought to light through a series of sodium amytal interviews. The psychodynamic origins of the perversion are discussed, with emphasis on the sadistic elements.

It is suggested that necrophilic fancies are more common than is generally realized.

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1,000 PREFRONTAL LOBOTOMIES---A FIVE-TO-10-YEAR FOLLOW-UP STUDY*

With Discussion

BY H. S. BARAHAL, M.D.

Now that the ataractic drugs occupy the center of the therapeutic stage, it is well to review the long-term results of an extensive and intensive prefrontal lobotomy program which is at present on the wane. Pilgrim (N.Y.) State Hospital has a patient population of over 15,000. Prefrontal operations were begun in 1945, but only four were done during that year and none during 1946. In the period, 1947 through 1955, approximately 1,600 operations were performed, all by the same surgeon, using the same technique in each case. The procedure was a combination of the closed method described by Freeman and Watts,¹ utilizing Lyerly's superior approach.²

This is the standard prefrontal lobotomy operation involving the severing of fibers bilaterally as well as bimedially. The procedure consists of making two vertical incisions, each 4 cm. long, bilaterally over the coronal suture. A burr hole is made on each side. After the dura is incised, a ventricle needle is inserted in the plane of the coronal suture toward the base. The leucotome is inserted along the superior surface of the needle and swung laterally. The instrument is then withdrawn, and then reinserted for a more limited swing medially.

This procedure has been criticized as causing marked personality changes and has been departed from by carrying out more localized operations, particularly the bimedial procedure.³ Most workers agree, however, that while the bimedial approach is preferable in the milder, nonhospitalized mental states, the standard lobotomy is to be preferred in the chronic hospitalized disturbances. In a previous survey of some of these cases,⁴ encouraging results were reported; but that report was open to the justifiable criticism that it included many cases of recent operation and, therefore, did not permit long-term evaluation.

The present study is concerned with what is probably the largest group of patients ever operated on by one surgeon by a standard

*This paper was presented, in essence, at the divisional meeting of the American Psychiatric Association at the Hotel Roosevelt, New York City, November 17, 1957.

method in any one hospital, after which all had the same post-operative care and training, and were followed for a five-to-10-year period. There have been other reports of large groups of operated cases,^{5, 6, 7} but these have either involved collections of patients from various sources or have included the transorbital methods of operation as well.

The present study involves 1,095 patients operated on five-to-10 years previously, 366 males, and 729 females (Table 1). This

Table 1. Total Lobotomies (1945-1951)

	Number	Percentage
Males	366	33
Females	729	67
Total	1,095	100

disproportion in sex is difficult to explain. It probably involves a number of factors. First, families tend to delay permission for surgery on male patients for longer periods, fearing that the lobotomy may permanently impair the man's role as a breadwinner for the family. Second, one of the criteria for surgery on chronically ill patients has been disturbed behavior; and female patients are generally more disturbed on a behavior level. Third, during the period involved, several women physicians were very interested in the research aspects of the program and were, therefore, more assiduous in obtaining permits.

Table 2 shows the number of operations done by year. The steadily increasing crescendo of operative cases during the years in question reflects the optimism with which the procedure was viewed at the time. This was also the pre-ataractic era.

Table 2. Totals of Lobotomies by Years

	No. of Patients	
	Males	Females
1945	3	1
1947	12	24
1948	43	122
1949	105	183
1950	118	137
1951	85	262
Total	366	729

Table 3. Distribution of Lobotomized Patients by Lengths of Hospitalization

	Under 1 Yr.	1-2 Yrs.	2-3 Yrs.	3-4 Yrs.	4-5 Yrs.	5 Plus Yrs.	Total
Males							
Number	36	38	20	25	14	233	366
Percentage	10	10	5	7	4	64	100
Females							
Number	149	143	76	43	37	281	729
Percentage	20	20	10	6	5	39	100
Total							
Number	185	181	96	68	51	514	1,095
Percentage	17	16½	8½	6	5	47	100

Table 3 indicates the distribution of these lobotomy cases by length of hospitalization. It was first planned to use duration of illness as a criterion, but this is usually difficult or impossible to assess. To corroborate this point, a number of random case histories were presented at a staff meeting for opinions as to duration of illness. The opinions varied so widely as to be of little value. Duration of hospitalization is also a more realistic gauge, because ability to live outside of the hospital would indicate, if not freedom from illness, at least a better social integration than that of severe psychosis. Use of hospitalization duration is particularly important in the case of schizophrenia, about which there is considerable difference of opinion among psychiatrists as to whether the condition exists at birth or results from the social milieu of the patient. It is to be noted that 64 per cent of the lobotomized male patients had been hospitalized continuously for five or more years at the time of operation, but only 39 per cent of the female patients were in this category, again showing that the women were operated upon earlier in their illnesses than the men.

Table 4 gives the distribution of all the operative cases as of 1956. Of these, 68 per cent are still in the hospital, 16 per cent

Table 4. Distribution of Lobotomized Patients After Five to 10 Years

	At Home	In Hosp.	In Other Hosp.	Died	Lost to Contact	Total
Males	27	264	17	39	19	366
Females	149	476	22	46	36	729
Total	176	740	39	85	55	1,095
Percentage	16	68	3	8	5	

are living at home, 3 per cent are in other mental hospitals, 8 per cent are deceased, and 55 cases are lost to contact. The "lost to contact" patients had either disappeared and could not be located at the time of the study; or they refused to co-operate with the hospital in evaluating their present conditions, but apparently were still adjusting out of the hospital. That only 231 patients, or 21 per cent of the total number lobotomized, are still out of the hospital after five to 10 years, may be interpreted as a poor result; but considering the durations of the illness of those operated on and the infrequency of spontaneous improvement and release without treatment in that type of patient, the figure is believed significant. The significance is particularly obvious in studying Table 5, which shows the distribution of 606 patients who were recommended for prefrontal lobotomy but for whom opera-

Table 5. Controls

	Distribution of Controls				Total
	At Home	In Hosp.	In Other Hosp.	Died	
Males	2	169	5	1	177
Females	10	413	4	2	429
Total	12	582	9	3	606
Percentage	2	96	1½	½	100

tive permits could not be obtained. This was used as a control series, as in every respect other than the operation itself these patients were considered comparable to the operation series. In the control series only 2 per cent were discharged from the hospital after five to 10 years.

Table 6 shows the distribution of the lobotomy cases according to diagnostic category. It can be seen that close to 90 per cent fall into the schizophrenic group. The figure of 21 per cent now out of the hospital applies equally to this schizophrenic group and to the total.

Table 6. Distribution of Lobotomized Patients by Diagnostic Classification

	Nos. of Patients		
	Operated on	Out of Hospital	Percentage
Dementia praecox, paranoid	346	69	20
Dementia praecox, hebephrenic	272	46	17
Dementia praecox, catatonic	304	82	27
Dementia praecox, simple	22	0	0
Dementia praecox, mixed	23	7	30
Manic-depressive psychosis	36	6	16
Involutional psychosis	43	18	42
Psychoneurosis	4	2	0
Psychosis with psychopathic personality..	4	0	0
Psychosis with mental deficiency	24	0	0
Others	17	1	0
Total	1,095	231	21

It was felt advisable to determine whether the length of hospitalization had any relationship to discharge after operation. Table 7 illustrates this relationship. Of those patients who had been in the hospital less than a year, more than 44 per cent were eventually discharged after operation. Of the patients who had been in the hospital five or more years, only 6 per cent were discharged. This finding might be considered by some to be a good reason for early surgery, but such a conclusion would also be open to the argument that some of these patients would have improved eventually without surgery. Up to 1950, the criteria for surgery were

Table 7. Lobotomized Patients Released from Hospital, and Length of Hospitalizations

	Under 1 yr.	1-2 yrs.	2-3 yrs.	3-4 yrs.	4-5 yrs.	5 plus yrs.	Total
Males							
No. lobotomized	36	38	20	25	14	233	366
No. discharged	16	13	5	3	4	5	46
Percentage discharged	44½	34	25	12	28½	2	13
Females							
No. lobotomized	149	143	76	43	37	281	729
No. discharged	66	57	15	13	9	25	185
Percentage discharged	44	40	20	30	24	8	25
Total							
No. lobotomized	185	181	96	68	51	514	1,095
No. discharged	82	70	20	16	13	30	231
Percentage discharged	44	38	21	23	25	6	21

as follows: After admission, a patient would receive the usual therapies available at the hospital, including electric and insulin shock treatments, occupational therapy, and psychotherapy—when possible. In many cases, if improvement did not result within a reasonable period after treatment began, an additional course of electric shock treatment was given. If within a month after cessation of treatment, no improvement resulted, the patient was considered eligible for prefrontal lobotomy, regardless of length of hospitalization. A more conservative policy was subsequently adopted requiring, for most patients, at least a year following these usual treatments before surgery was recommended.

Table 8 shows the condition, after a period of five to 10 years, of the patients discharged from the hospital. Approximately 85 percent of those discharged continue to be either improved, much

Table 8. Lobotomized Patients out of Hospital (5-10 Yrs.)

	Unimproved	Improved	Much Improved	Recovered	Lost to contact	Total
Males	6	9	9	3	19	46
Females	15	70	56	8	36	185
Total	21	79	65	11	55	231

improved, or recovered. The criteria for these were as follows: A patient was considered improved when he was able to adjust outside the hospital at a better level than before operation, but continued to show residual symptoms and was dependent on others for support. The "much improved" patient was employed, but at a reduced economic level from that before his illness; and he also showed some residual personality and other defects. The "recovered" patient showed no obvious defects or residuals and returned to his former level of employment and adjustment.

Table 9 is considered the most significant in this study, as it shows the condition of patients still remaining in the hospital after operation. As can be seen, 38 per cent of the patients remaining in the hospital after lobotomy are adjusting at a better level than before the operation and are considered either improved

Table 9. Lobotomized Patients in Hospital (Condition—5-10 Years)

	Improved	Much Improved	Unimproved	Total
Males				
Number	81	3	180	264
Percentage		32	68	
Females				
Number	186	15	275	476
Percentage		42	58	
Total				
Number	267	18	455	740
Percentage		38	62	

or much improved. It is this fact which has been quoted as a strong justification for surgery in long-hospitalized patients. The type of improvement is not categorized, but in most instances it refers to better hospital integration, so that patients previously difficult to care for on a hospital ward with noisy, disturbed, assaultive, and destructive behavior become amenable to the usual hospital therapies, in many instances continuing to retain their delusional and hallucinatory experiences but with diminished force. The patients who showed no improvement were 62 per cent of those lobotomized. Because these patients were all severely ill at the time of operation, none of them could be definitely classified as having been made worse by the operation, except perhaps those patients who subsequently developed convulsions.

Table 10 shows the number and percentages of improved patients among the lobotomized males and females, and in the total lobotomy group, according to length of hospitalization. As can be seen, a total of 440 patients showed improvement after the operation. Inasmuch as 47 per cent of all the patients operated upon belong to the category of five-plus years of hospitalization, and inasmuch as 44 percent of all the improvements also came from that category, it can be seen that length of hospitalization had no relationship to improvement. Similarly, patients hospitalized less than a year contributed 17 per cent to the total operative list and 17 per cent to the total of the improved patients. This should be contrasted with the information in Table 6—previously noted—showing that there is a very positive relationship between length of hospitalization and the possibility of discharge from the hospital after operation. In essence, therefore, it may be said that

660 1,000 PREFRONTAL LOBOTOMIES: A FIVE-TO-10-YEAR FOLLOW-UP

Table 10. Improvement of Lobotomized Patients in and out of Hospital
(Includes Improved, Much Improved, Recovered) By Hospitalization
Duration

	Under 1 yr.	1-2 yrs.	2-3 yrs.	3-4 yrs.	4-5 yrs.	5 plus yrs.	Total
Males							
Number lobotomized ..	36	38	20	25	14	233	366
Percentage of males							
lobotomized	10	10	5	7	4	64	
Number improved	15	13	3	9	4	61	105
Percentage of males							
improved	14	12	3	9	4	58	
Females							
Number lobotomized..	149	143	76	43	37	281	729
Percentage of females							
lobotomized	20	20	10	6	5	39	
Number improved	59	73	33	25	16	129	335
Percentage of females							
improved	18	21	10	7	5	39	
Total							
Number lobotomized..	185	181	96	68	51	514	1,095
Percentage of total							
lobotomized	17	17	8	6	5	47	
Number improved....	74	86	36	34	20	190	440
Percentage of total							
improved	17	19	8	8	4	44	

lobotomy is of only limited value in long-hospitalized patients if the goal is ultimate discharge from the hospital into the community. However, if the goal is limited to better hospital adjustments, less disturbed behavior, and a greater interest by the patients in themselves, in their fellow-patients and in the various ward activities, there is close to a 40 per cent possibility for the goal's attainment—although adynamic, delusional and hallucinatory feelings still exist.

Table 11 shows that there were convulsions following lobotomy in 14 per cent of the total operated on, if one includes the patients with single convulsions and repeated convulsions, as well as the patients who died in convulsive deaths as late as five years following operation. Most of the convulsive reactions were adequately controlled by anti-convulsant therapy.

Table 11. Convulsions

Total lobotomy patients	1,095
Lost to contact	55
Total in study	1,040
Single convulsion	32
Repeated convulsions	94
Convulsive deaths	20
Total convulsions	146
Percentage of convulsions	14

Table 12 shows that 6.2 per cent of the lobotomized patients died, either as an immediate result of the surgery or, later, from conditions attributable to the surgery. Table 13 breaks down the total deaths, including those not related to the operation. It is to be noted that 20 patients died of convulsions anywhere from one month to five years after operation. In some of these, there were

Table 12. Deaths Due to Lobotomy

	Total Lobotomized	Deaths	Percentage
Males	366	28	7.6
Females	729	40	5.4
Total	1,095	68	6.2

Table 13. Causes of Death

		Postoperative Period
Operative deaths due to causes		
immediately attributable to surgery	48	1 day to 1 month
Status epilepticus	20	1 month to 5 years
Carcinoma of colon	1	5 years
Carcinoma of breast	1	3½ years
Pulmonary thrombosis due to femoral		
thrombophlebitis	1	2 years
Lobar pneumonia	1	6 months
Bronchopneumonia	2	1½ years; 2½ years
Atypical pneumonia	1	2½ months
Lung abscess	1	6 months
Acute hepatitis	1	2½ years
Acute left heart failure	1	4 years
Cerebral hemorrhage	2	1½ years; 1½ years
Acute coronary occlusion	3	2½ yrs.; 3 yrs.; 5½ yrs.
Arteriosclerotic heart disease	2	7 months; 1½ years
Total	85	

no indications of convulsions before the terminal seizures. The relatively long periods involved from the time of operation to death by seizure would indicate that scar tissue formation or cystic degeneration around the operative area are slow processes. Other authors have noted the greater tendency to late sudden death in lobotomized patients, and Freeman speaks of a rather high accident rate among these patients.⁷ It is the impression of the present writer that many deaths occurring in previously lobotomized patients are attributed to cardiac or accidental causes, when unobserved convulsive or akinetic seizures are actually responsible. Case material involving this question will be discussed later in this report.

VARIOUS OBSERVATIONS ON LOBOTOMIZED PATIENTS

Personality Changes

Personality changes have been described frequently following prefrontal lobotomy, the extreme reports referring to these patients as "zombies" and the more benign holding that there are no actual changes, the personality defects being due to the mental condition itself. The writer feels that neither of these attitudes is entirely justified. There are many patients who show no profound personality changes following prefrontal lobotomy, except for improvement in the mental condition. There are, however, a good many who display such disturbing personality problems as to make social adjustment difficult, and these changes cannot always be attributed to the mental illness. There are distinctive personality changes resulting from lobotomy in a significant number of patients—changes which are different from those of the original psychoses. When there is a marked degree of personality involvement in schizophrenia, the psychosis itself is of a rather severe grade, and the personality disturbance can be readily recognized by observation as one of the manifestations of the mental illness. However, the patient with personality changes following lobotomy frequently makes an excellent superficial impression. Such a patient may be neatly dressed, may talk intelligently, and display little or no disturbance in affect, the only indication of severe disturbance may come from reports by members of his family and associates. It may be said, therefore, that the postlobotomy patient frequently appears better integrated than he actually is, and that the ultimate test is his reaction to situations requiring judgment

and discrimination. Even projective tests fail to reveal the type of involvement and until new tests are devised, psychological procedures are of little value in determining the degree of personality change. A few typical case reports follow:

Operation 891

This woman was admitted to Pilgrim State Hospital at the age of 35 years, on March 11, 1950, diagnosis dementia praecox, paranoid type. She had had previous hospitalizations in West Hills (October 15, 1943 to November 23, 1943) and at Pilgrim (November 29, 1943 to December 15, 1947). She had been mentally ill for many years, and had had both electric shock and insulin shock treatment with only temporary improvement. She underwent prefrontal lobotomy on January 26, 1951. Before the lobotomy, the patient was actively deluded and hallucinated. Following it, she showed a marked behavior improvement, was released on convalescent status on July 15, 1951, and was discharged on July 15, 1952. She is now neatly dressed and pleasant, and outwardly shows no marked change in personality; but her husband reports that she is rather untidy about her housekeeping, sweeping dirt under the rugs or in corners; and she shows poor judgment in shopping and buys many useless articles, neglecting to buy the things she needs. On a number of occasions, she attempted to fry potatoes in a plastic dish. Although prior to her hospitalization, she was very reticent about sexual matters, she has become more demanding sexually since the operation, and is no longer shy about such things.

Operation 216

A woman of 30 was admitted to Pilgrim on July 17, 1940, diagnosed dementia praecox, hebephrenic type. A prefrontal lobotomy was performed January 19, 1949. Before the lobotomy, this woman was very assaultive and destructive. She required restraint and was considered a regressed patient. Following the operation, she showed amazing improvement, but displayed a "defect state." She began to show some homosexual tendencies which had not been noted previously. She was released in convalescent care, October 15, 1950, but had to be returned on February 10, 1951, because she was careless about smoking, and the family was afraid she might start a fire; the floors were covered with cigarette burns. She made many useless telephone calls and exhibited herself. She found a job in a nursing home, but was asked to leave after a few months because she struck patients and was sexually promiscuous with male employees. She also showed poor judgment in handling her sister's infant child, for instance, lighting a match and asking the baby to blow it out—coming perilously close to burning the crib. She is adjusting excellently in the hospital, sings in the choir, and takes part in all activities. It would be

difficult to discover any disturbance through an ordinary psychiatric examination.

Operation 480

This female patient, admitted to Pilgrim at the age of 44, on February 18, 1949, was diagnosed dementia praecox, catatonic type. She was noisy, overactive and assaultive. She responded only temporarily to electric shock treatments, receiving many over a period of a year. A prefrontal lobotomy was performed December 13, 1949, resulting in a marked improvement in behavior and release in convalescent care July 9, 1950. She was returned March 12, 1951, because of a return of symptoms. She again went out on convalescent status August 12, 1951, and returned August 20, 1951. Her third release in convalescent care was on December 25, 1952. She has had to be kept on medication because of convulsive seizures resulting from the lobotomy. Although she takes care of her home, she shows a markedly flattened affect, little initiative, is disinterested in social life, is excessively demanding sexually and shows a marked increase in weight (65 pounds).

Operation 268

This patient was 32 years old at the time of her prefrontal lobotomy in 1949. She had shown mental symptoms since 1940 in the form of seclusiveness, confusion, mutism, and catatonic stupors. She was hospitalized October 9, 1940, and was diagnosed as suffering from dementia praecox, catatonic. She had electric shock and insulin shock treatments with excellent results. She remained in a recovered state until 1948 when there was a return of symptoms, and she was hospitalized February 13 of that year. Again, she had electric shock, insulin coma, and combined therapies, this time with no improvement. A bilateral prefrontal lobotomy was done, March 22, 1949. There was a profound improvement in her condition, resulting in her release in convalescent care, August 5, 1949, and her discharge the following year. In 1952, she married—and became pregnant shortly thereafter. She showed no concern about the pregnancy and gave birth to the baby spontaneously in the bathroom of her home. She did not feel there was anything unusual about this nor did she show any concern about the child's care, so that placement in a foster home was required. In 1956, her mother slipped in the bathtub of her home and fell to the floor, while the patient was in the house. The patient "sat her up" on the floor against the tub and then proceeded to her own home, with no mention of the incident to her husband for two hours. The husband rushed over to the mother's home and found her dead. The patient can give no adequate explanation for this. She says, "She seemed to be all right and I could see no urgency or need to disturb anyone." The patient gives a superficial impression of being neatly dressed and alert, but pays little attention to household duties, such as cooking or cleaning,

and shows poor judgment in purchases, frequently spending her money on useless trinkets, but failing to buy necessities.

Marked Improvement After Long Illness

It is the ability of prefrontal lobotomy to produce improvement in patients of long-standing illness which first made the operation an important procedure in state hospitals. Although some of the patients who had been ill for long periods subsequently improved sufficiently to be released from the hospital and to make adequate social adjustments; more often, the improvement was not to a degree sufficient for adjustment outside a hospital environment. Some typical histories follow:

Operation 10

A man of 20 was admitted to Pilgrim on June 12, 1939. His diagnosis was dementia praecox, hebephrenic; and he proved to be one of the most difficult types of patients to care for, because of his impulsive, assaultive behavior. After considerable metrazol and electric shock treatment, he finally had a prefrontal lobotomy on June 30, 1947, with marked improvement. He was released in convalescent care, September 7, 1947, and was discharged as much improved a year later. He was employed steadily in his father's business and was neatly dressed. He displayed a compulsive obsequiousness. On April 14, 1953, word was received from Dr. Tracy Putnam in Beverly Hills, Calif. that he had been following the patient's case, that the young man had made a remarkable recovery, and had worked steadily until two weeks before—when he again became irritable, developed ideas of persecution, and had to be placed on the psychiatric ward of the county hospital.

Operation 272

A woman of 60 was admitted to the hospital on January 3, 1949, a case diagnosed involuntional psychosis, melancholia. There was a history of 15 years of mental symptoms, with marked fears, depression, and suicidal tendencies. Her husband had to quit his job because she was afraid to let him go out of her sight. She failed to respond to electric shock treatment. Prefrontal lobotomy was done on March 25, 1949, with marked improvement; she gained in weight, became pleasant and co-operative, and lost her depression and fears. She was released as convalescent on August 7, 1949, and discharged the following August. She remained apparently recovered until her voluntary readmission on August 16, 1954, when she reported that, for two months, she had been losing weight and becoming increasingly depressed. She had a course of electric shock treatment and showed an excellent response. She was discharged in December 1954 as recovered.

Operation 188

Admitted at the age of 34 on October 14, 1932, and continuously hospitalized since, this woman was diagnosed as a case of dementia praecox, paranoid. Before her lobotomy, on November 23, 1948, she was very untidy, assaultive, destructive and homicidal, and was continuously in restraint because of her dangerous tendencies. The lobotomy was followed by marked improvement. She has been working steadily, has been neat and tidy, and has been going home on visiting days. Because she still had delusions, she has remained in the hospital, but on a markedly improved plane.

Operation 69

A female patient, hospitalized on February 24, 1944, at the age of 37, was diagnosed dementia praecox, paranoid type, with a history of mental illness for at least two years previously. She showed some improvement with electric shock treatment, was released on convalescent status on July 30, 1944, but was returned on September 29. She subsequently received a great deal of shock with no improvement. She was self-destructive, kept chewing her lips constantly and was an extremely difficult patient to care for. A prefrontal lobotomy was done, March 30, 1948, with a striking response. The patient was released in convalescent care on August 8, 1948, and discharged a year later. She has been working steadily as a stenographer, earning \$45 a week. There is no evidence of psychotic trends; she is animated; and she is very much interested in her sister, who is a patient at Pilgrim. She wonders whether a lobotomy might help the sister. It is reported that she occasionally develops depressive feelings for a day or two—when she becomes uncommunicative, but this is not considered of any consequence by her family. She is careful about shopping, saves her money, shows initiative in her work, and attends classes two nights a week. She shows no interest in men.

Operation 155

This woman, admitted to Pilgrim, October 9, 1946, at the age of 26, had a history of four years of mental symptoms. She received electric shock treatment, with only a temporary response, was released from the hospital in 1947 and again in 1948, but had to be returned both times, because of disturbed behavior and active hallucinations. A lobotomy, September 24, 1948, was followed by marked improvement. She was released in convalescent care July 3, 1949, and discharged a year later. She has been employed steadily as a cashier at a large department store, showing good judgment and satisfactory interpersonal relationships. She was married in 1955 and apparently is making an adequate marital adjustment.

Operation 96

This woman patient was admitted to the hospital at the age of 29, August 22, 1944, with a history of mental symptoms for about a year and a half. Her diagnosis was dementia praecox, catatonic. There were strong overt homosexual drives, and her disturbed behavior required mechanical restraint. She frequently broke windows, was mute, withdrawn, and showed marked, impulsive, suicidal behavior. She received over 60 electric shock treatments with no response. A prefrontal lobotomy was done May 21, 1948, with marked improvement, although she developed convulsive seizures which responded to treatment. She was released in convalescent care, November 17, 1953, and discharged, November 17, 1954, to her own custody. She is now employed in a nursing home, earning a good salary, and is studying typing and comptometry. She is considered to be recovered.

Operation 68

A man patient of 32 was admitted June 6, 1946. The diagnosis was dementia praecox, catatonic. He had been mentally ill continuously for at least nine years before this hospitalization. A prefrontal lobotomy was done on March 25, 1948. He was released on convalescent status June 20, 1948, and discharged after a year. He has been steadily employed since then with no evidence of overt psychosis.

Increased Sexual Drive and Loss of Inhibitions

The problem of increased sexual drive and loss of inhibitions has been a distressing one in some cases, but fortunately is not a frequent concomitant of the postlobotomy syndrome. Some short case histories follow:

Operation 230

A woman of 29 was admitted to Pilgrim on November 13, 1947. Her diagnosis was dementia praecox, catatonic type, with a history of mental symptoms since the recent birth of her child. She was markedly agitated, depressed, hallucinated, assaultive, and showed only temporary response to electric shock treatment. She had to be kept constantly in mechanical restraint. A lobotomy was performed February 4, 1949, with marked improvement. She was released in convalescent care March 5, 1950, and discharged in March 1951. At first, she took care of her home and children, but in 1956, she began to become neglectful of her home, to "run around with" many men and have promiscuous relations with them. She walked around naked in front of her son and her father, and drank excessively, contrary to her previous behavior. She almost killed her child on two occasions by trying to throw him from a window. She finally disappeared from home, and nothing has been heard from her in recent months.

Operation 58

This man of 27 was admitted to the hospital on May 19, 1947; his diagnosis was dementia praecox, paranoid; and there was a history of previous hospitalization in 1944. He was very agitated and hallucinated, and did not respond to electric shock treatment or to insulin therapy. A lobotomy was done March 2, 1948, resulting in marked improvement. The patient was released on convalescent status May 16, 1948, and discharged a year later. For about two years after release, he was steadily employed and made a good adjustment. The improvement was not sustained, however; he is now dull, and is again dependent on his family for support. Although, before his psychotic reaction, he was described as a very submissive and refined individual, he became aggressive, used obscene language and sexually exhibited himself after his release from the hospital. He was readmitted (to Brooklyn State Hospital) in August 1953.

Operation 144

A woman was admitted to Pilgrim State Hospital, at the age of 34, on November 13, 1947, in a mute, resistive, assaultive state. The diagnosis was dementia praecox, catatonic type. She responded temporarily to electric shock treatment. A prefrontal lobotomy was done August 24, 1948, with no immediate response; but she was released against advice on December 1, 1948, and was discharged on December 1, 1949, when she was reported to be well-adjusted, neatly dressed, and taking care of her home and children. When seen recently, she was reported to be subject to convulsions. She is now untidy, very obese, shows poor judgment, has little initiative, and spends all day watching television. There has been a great increase in sexual demands and activity.

Operation 116

A woman of 24 was admitted to Pilgrim on March 2, 1944, diagnosed as having dementia praecox, hebephrenic type. She showed some response to electric and insulin shock therapy, but of a temporary nature. There was a lobotomy on June 29, 1948. She was released in convalescent care May 8, 1949, and discharged the following May. She has been steadily employed as a stenographer, and saves her money. She has gained 60 pounds, has become very promiscuous sexually, and drinks excessively. She has become very rigid about cleanliness, which is a contrast to her behavior before her release.

Operation 94

A woman of 56 was hospitalized on April 1, 1946; her diagnosis was dementia praecox, paranoid. She had ideas of reference and persecution. She responded temporarily to electric shock treatment. She was released in convalescent care August 11, 1946, but return was necessary on Novem-

ber 24, 1946. A lobotomy was performed May 18, 1948. She was again released August 15, 1948, and discharged August 15, 1949. She did not adjust too well, was unable to obtain employment, was slovenly in her personal habits, and became easily excited. She gained a great deal of weight, used profane language, was very much preoccupied with the subject of sex and very demanding sexually. Her return to the hospital was necessary on August 19, 1954.

Operation 73

A female patient of 32, admitted to Pilgrim on October 25, 1946, was diagnosed as a case of dementia praecox, paranoid type, with a history of mental symptoms since 1943. She was seclusive, and had ideas of reference and persecution. She did not respond to electric shock treatment; and a prefrontal lobotomy was done on April 6, 1948. She was released on convalescent status, July 18, 1948, but return was necessary April 3, 1949, because of her erotic behavior. She was again released on January 28, 1950, discharged January 28, 1951, and again returned to the hospital September 25, 1953, because of sexual promiscuity.

Diminished Sexual Drive Following Lobotomy

Although a frequent criticism of prefrontal lobotomy is that it produces a marked loss in sexual inhibitions, a considerable number of patients showed diminished sexual drives and interest. The following case history is illustrative of this.

Operation 51

A woman of 39 was hospitalized on October 23, 1944. The diagnosis was dementia praecox, paranoid. She was disturbed, depressed, and showed no response to metrazol or electric shock, except on a temporary basis. She was subject to impulsive behavior and catatonic postures. A lobotomy was done on February 17, 1948. She was released in convalescent care April 18, 1948, was returned December 4, 1948, again released on September 18, 1949, and finally discharged September 18, 1950. She has gained a great deal of weight, but she takes care of her home. She is overtalkative; and there has been a gradual diminution in her sex drive, so that she now shows no interest in sexual activity.

Marked Gain in Weight

Although occasional patients lose weight after the operation, the more usual reaction to lobotomy is a gain, at times amounting to over 100 pounds. It is not known whether this response is caused by operative interference with the functioning of the hypothalamic centers, involving an endocrine dysfunction; or

whether, with the decrease in tension and anxiety, there is a lessened metabolic need. The writer has, however, observed repeatedly, that many patients following lobotomy eat excessively, at times voraciously; some keep stuffing food into their mouths whenever they can get their hands on it. They are, of course, the more regressed patients. However, similar weight gains have been noted, in patients who are in better contact and are rather concerned about this symptom. In many instances they have placed themselves on diets with more or less success.

Operation 399

A woman admitted to Pilgrim at the age of 34, on September 10, 1945, was diagnosed as suffering from dementia praecox, hebephrenic type. A prefrontal lobotomy was done September 6, 1949, and she was discharged from convalescent care April 9, 1951. She has gained 120 pounds, and she eats every two hours. Mentally, she is unimproved, has to be told what to do around the house, and has difficulty remembering things.

Operation 150

A woman of 28 was admitted to the hospital on November 27, 1942; her diagnosis was dementia praecox, catatonic. A lobotomy was performed September 3, 1948. She was discharged from convalescent care April 19, 1950. She has gained 90 pounds; she eats "constantly," works sporadically, and has to be urged to change her clothes and take care of herself. She shows poor judgment in handling money.

Operation 77

This female patient of 52 was admitted to Pilgrim on October 23, 1947; her diagnosis was involutional psychosis, paranoid. A prefrontal lobotomy was done April 13, 1948, and she was discharged from convalescent care November 1, 1949. She eats "constantly," has gained 50 pounds, is unemployed, and is "odd" in behavior. She has little understanding of the value of money.

Operation 39

A woman of 40, admitted to the hospital January 24, 1947, was diagnosed as a case of dementia praecox, paranoid type. A lobotomy was done December 23, 1947, and there was a marked behavior improvement; but she continued delusional and hallucinated, and is still in the hospital where she is co-operative and a good worker. She gained 77 pounds.

Operation 475

A woman of 30 was hospitalized December 30, 1948. The diagnosis was dementia praecox, catatonic. A prefrontal lobotomy was done December

6, 1949, and she was discharged from convalescent care April 9, 1951. She displays a marked "defect state," does very little housework, and eats frequently during the day. Her weight has gone up from 98 pounds to 210.

Homosexuality Following Lobotomy

A number of patients who did not show such tendencies previously have been reported as becoming overtly homosexual since the operation. It may be assumed that unconscious homosexual drives had previously been repressed and conscious ones inhibited.

Operation 414

A man of 36 admitted to Pilgrim on March 10, 1939, was diagnosed as a case of dementia praecox, catatonic type. A prefrontal lobotomy was done September 23, 1949, followed by a marked change in his condition. He is destructive, un-co-operative, and assaultive. Although he used to expose himself before the operation, overt homosexual tendencies were not evident until after the lobotomy.

Operation 416

This male patient was hospitalized at the age of 25, on May 25, 1938; the diagnosis was dementia praecox, simple. A prefrontal lobotomy was done September 27, 1949, and there has been some behavior improvement, in that he is more co-operative and a good worker, although he has to remain in the hospital. Strong overt homosexual tendencies have been noted since the operation.

Retrograde Amnesia Following Lobotomy

Most patients show varying degrees of amnesia, not only for the operation, but for periods of time preceding the surgery. In some cases, the amnesia is so profound as to involve the entire period of illness, dating back many years. In such a case, it is as if the patient had been asleep throughout the whole illness and had lost complete track of the time, beginning time again, with years omitted, at the postoperative period. Some of these patients have vague memories of occurrences during their illnesses; but they speak of them as if they had happened in a dream. Many patients persistently deny that they have had operations.

Operation 1151

This woman patient was admitted to Pilgrim at the age of 36, on May 26, 1951; her diagnosis was dementia praecox, catatonic type. She had had a frank psychosis since December 1950. She had considerable electric

shock and insulin coma therapy with little response; and a lobotomy was done April 8, 1952. There was a marked improvement, and she has been discharged from the hospital since September 7, 1952. She makes a good impression, is neatly dressed, is in excellent contact, and is jovial. She has amnesia for the entire period of her hospitalization as well as for several years before. She says that, about three months after her lobotomy, she suddenly seemed to wake up and wonder how she had gotten into the hospital. She had to become newly acquainted with her daughters of 16 and 18, whom she did not remember at all. She is now employed as a saleswoman. She had previously been obsessive about cleaning and housework, but no longer is. Her previous sexual frigidity has changed markedly—to insatiability. Occasionally, she speaks out bluntly and in “unladylike” fashion—but not to a disturbing degree.

Improvement, But Failure to Adjust Outside the Hospital

It is in the area of improvement inside the hospital that the prefrontal lobotomy operation appears to have had the greatest use in state hospitals, particularly in dealing with chronic schizophrenics. Many patients who previously were difficult to care for in a hospital environment now make an excellent hospital adjustment; but when an effort is made to adjust them outside, they are unable to carry on.

Operation 287

A male patient of 43, admitted on February 23, 1949, had a diagnosis of dementia praecox, hebephrenic type. A lobotomy was done on April 12, 1949; and the man was discharged from convalescent care October 9, 1950. He failed to adjust because of his dangerous tendencies, with threats to kill members of his family and assaults on his parents. In the hospital, he gets along fairly well and shows no assaultive behavior.

Improvement After Failure to Get Permission for Lobotomy

There is nothing which plagues the self-esteem of psychiatrists more than to make a recommendation for a prefrontal lobotomy, after apparently exhausting every possible means of avoiding it, and then to have the patient improve without the operation—when permission to operate is refused. This situation does arise at times and is mentioned here, without attempting any explanation of the dynamics behind such improvement.

A woman of 29 was admitted to Pilgrim on June 14, 1951. Her diagnosis, was dementia praecox, catatonic; and there was a history of mental symptoms for several years—catatonic postures and mutism. There was

a temporary response to electric shock and insulin treatment; but she continued to be very depressed and prayed constantly. A prefrontal lobotomy was recommended on September 2, 1952, but permission from her family was not obtained. On July 18, 1954, she was released in convalescent care. She was discharged in July 1955. She has gained insight, is pleasant, cheerful, and is free of psychotic trends or of any other manifestations of mental illness.

Delayed Convulsive Seizures and Sudden Death

There were 20 cases in this study of delayed convulsive seizures with more or less sudden death, thus making this complication an important factor in any lobotomy program. There may have been other patients reported as cardiac deaths who actually died from similar cerebral causes. In Operation 45, a cystic ventricular tumor was found, with marked dilatation of the ventricles. It is difficult to determine whether this had any relationship to the lobotomy. A frequent finding in the operative scars in postlobotomy brains is cystic degeneration. It is not known whether it is this or the scarring itself which plays a major role in convulsive seizures.

Operation 45

A woman of 30 was admitted to the hospital November 27, 1945. The diagnosis was dementia praecox, hebephrenic; and a lobotomy was done January 20, 1948. This resulted in a marked lessening of tension. The patient became pleasanter, but continued to hallucinate. There was also marked improvement in her bronchial asthma which had been disabling before the operation. Toward the end of 1955, she began to have grand mal and petit mal seizures. Neurological examinations were repeatedly negative, except for a mild bilateral parkinsonism. On January 1, 1956, she died suddenly in status epilepticus.

AUTOPSY REPORT. Brain: The brain weighed 1,120 grams. The convolutions showed a moderate flattening as if under pressure from fluid. **Gross Description:** There was a marked hydrocephaly, the lateral and third ventricles being greatly enlarged because of a mass in the third ventricle. This tumor was roughly spherical and measured 23 mm. in diameter. It appeared to be a cyst, probably choroidal in origin, with a gelatinous, structureless content. The operative cuts developed into wide cystic spaces from near the upper surface (points of entrance) to the lower ends of the cuts. There was only a thin membrane of ependyma separating them from the anterior end of the lateral ventricles. On the right, the cyst was 18 mm. long and 7 mm. wide at its widest part, and on the left, 21 mm. long. **Microscopic Findings:** The hematoxylin and eosin stain showed no

acute reaction though there were some lymphocytes nearby in the pia. The Holzer stain showed fibrous glia extending about .5 mm. from the edge of the lesion. At one level, the lesion was separated from the ventricle by a division varying from .5 to 1 mm. This consisted chiefly of glia with extensive fiber formation. The fibers did not extend into the surrounding brain tissue for any distance.

Operation 499

This woman was 26 at the time of her lobotomy on January 6, 1950. Her mental symptoms had begun in 1945 with fatigability, religious preoccupation and ideas of persecution. She was admitted to Pilgrim, November 5, 1945; the diagnosis was dementia praecox, paranoid. She had a course of insulin coma therapy and was discharged as recovered on March 17, 1946. In November 1946, there was a return of her symptoms, including auditory hallucinations. She was readmitted to Pilgrim, February 1, 1947, and again had insulin coma and electric shock treatment with an excellent response. She was discharged October 20, 1948, after a year in convalescent care. Shortly thereafter, her symptoms returned again and she was rehospitalized December 1, 1948. After another course of electric shock treatment, she was released in convalescent care on May 22, 1949, but had to be returned October 8, 1949. A bilateral prefrontal lobotomy was performed on January 6, 1950. There was temporary improvement; but the patient's general course was toward disturbed behavior, requiring repeated electric shock treatments. For a few months prior to her death, she had chlorpromazine and reserpine therapy with no apparent benefit. She died suddenly December 21, 1955, in a convulsive seizure.

AUTOPSY REPORT. *Brain:* The brain weighed 1,100 grams. There was moderate hyperemia of the pial vessels. *Gross Description:* The operative cuts and resulting cystic spaces varied from a width of about 4 mm., with little gross reaction, to a width of 22 mm. at the level of the upper edge of the caudate nucleus. They contained a gelatinous material. Lower down, the cystic spaces widened out anteroposteriorly to approximately 8 mm. and contained fluid. The operative lesions extended down to the level of the lower border of the insula and at some places were separated from the ventricle by a thin membrane. *Microscopic Findings:* The hematoxylin and eosin stain showed a cystic space which was separated from the lateral ventricle by a thin membrane. There was considerable increase of connective tissue derived from the pia. The Holzer stain showed a dense network of fibrous glia along the edge of the lesion. At several places, the scar formation extended from the cut at right angles for some distance—the maximum 2.8 mm. At some points where the cut was narrow, strands of glial fibers crossed to the opposite side in an apparent attempt to draw the edges together.

Operation 639

This man was 40 years old at the time of operation, June 13, 1950. He had been continuously hospitalized since December 11, 1933, with a diagnosis of dementia praecox, hebephrenic type. He generally displayed regressed, destructive, overactive, and hallucinated behavior. Following the prefrontal lobotomy, his behavior and reactions remained unchanged. In addition, and despite medication, he developed grand mal convulsions at the rate of one about every three months. On November 23, 1956, he died suddenly.

AUTOPSY REPORT. Brain: This brain weighed 1,400 grams. The veins on the surface were engorged. *Gross Description:* The cuts were very far forward and entered the brain on a level with the main part of the lateral ventricles. The cuts extended downward and backward. On the right the greatest diameters were 25 mm. laterally and 3.5 mm. anteroposteriorly. On the left the dimensions were 25x12 mm. There was considerable discoloration of the tissue around both cystic spaces. *Microscopic Findings:* Degenerative changes were seen for some distance from the cystic spaces, with a fine network of glial fibers extending .5 to 1 mm. into the surrounding brain tissue.

Operation 1648

This man was 29 at the time of his lobotomy on January 24, 1956. He had shown mental symptoms and convulsive seizures since early childhood and was continuously hospitalized since he was 15, with a diagnosis of dementia praecox, hebephrenic. He had symptoms of "isolation," silly behavior, assaultiveness and untidiness. In 1949, he developed pulmonary tuberculosis, but this became inactive under treatment. Because of his markedly disturbed behavior, which did not respond to the usual therapy, he had a prefrontal lobotomy. On November 5, 1956, he was found dead on the floor of his ward. Autopsy revealed no marked changes and he was officially "signed out" as death due to acute left heart failure. The man's history and age, and the circumstances of his death make a convulsive death more probable.

AUTOPSY REPORT. Brain: This man's brain weighed 1,250 grams. There was no obvious pathology to be seen on the surface. *Gross Description:* The operative openings on the surface were large (measuring about 15 mm. in diameter). The lesions were cystic spaces, extending across most of the frontal white matter, and at their widest, about 18 to about 38 mm. across. The cysts were widened anteroposteriorly at the upper level of the insula to about 11 mm. The connections of white matter between frontal and other parts of the brain were mostly destroyed. The cystic spaces were largely filled by a network of connective tissue exudate. There was marked dilatation of the blood vessels in the basal ganglia, particularly

in the putamen. *Microscopic Findings:* The hematoxylin and eosin stain showed extensive cyst formation. The cystic spaces were lined by many compound granular corpuscles. Some of these contained blood pigment. The Holzer stain showed an increase of fibrous glia around the edge of the cystic softening; but this did not extend into the tissue for any distance. In some areas, there was a fine network of glial fibers within the cyst.

SUMMARY

It is perhaps anticlimactic to be concerned with the results of a prefrontal lobotomy program when this procedure has been practically completely bypassed by the pharmacotherapeutic current. Yet experience shows that there is no one form of treatment available which can completely supplant all other approaches, and there may still be indications for lobotomy. This report of a five-to-10-year follow-up of 1,095 lobotomized patients may be interpreted in different ways. However, the results can be summarized as follows: 231 patients, or 21 per cent, of the group were discharged from the hospital, although only 176, or 16 per cent, could be definitely traced at home, the other 5 per cent being lost to contact. Offhand, one would assume that a 21 per cent rate of discharge from the hospital from a group of chronically ill, schizophrenic patients would constitute a very favorable result.

However, the percentage of discharges varies from 44 per cent in the group hospitalized under one year to only 6 per cent in the group hospitalized five years and more. Of the whole 1,095 lobotomized patients, 68 per cent still remain in the hospital at the end of the observation period, and about 38 per cent of these are considered improved. As a result of the surgery, 6.2 per cent of the patients died, including a rather large number of patients, 20, who died suddenly, or in status epilepticus at times up to five years after the operation. The total of postoperative convulsions was also fairly high, 14 per cent, but this figure includes patients with only single convulsions.

With the advent of drug therapy, it is assumed that there will be very few lobotomies done in the future. The author feels that in the present state of psychiatry—and because of the various complications and unfavorable features in lobotomized patients—the operation should be limited to patients who have failed to improve after all other practical treatments, such as psychotherapy, electric shock, insulin shock, and the various ataractic drugs. The

word *practical* is used advisedly. It is obviously impractical to expect long-term psychotherapy in any large group of patients in a state hospital set-up with marked overcrowding and limited staffs.

Lobotomy however should be a last resort, and its performance can wait safely for at least a two-year period, and perhaps longer, while other therapeutic procedures are tried. This is in close agreement with Bailey and Sugar⁹ who state that, with the use of the newer drugs, the temptation to use lobotomy early in the course of mental illness has been practically eliminated. This is in marked contrast to the views of Freeman¹⁰ that lobotomy should be considered for mental patients who do not improve after six months of conservative therapy, and of Brill¹¹ who states, "In those cases which fail to respond to this regime [the more conservative therapies] the conservative course seems to be to consider prefrontal lobotomy when it becomes clear that even after an observation period of several months late response is not to take place. This can usually be done toward the end of the first or in the start of the second year of continuous hospitalization." It must be remembered, however, that these views were expressed before the ataractic era.

The present study indicates that there is still a place for prefrontal lobotomy in the chronically hospitalized mentally ill; but this procedure should be used selectively and only after all other therapeutic efforts have failed. The relatively high death rate, the possibility of postoperative seizures, and the possibility of personality changes are factors to be considered carefully in every case.

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The author is grateful to the many persons who participated in this study. Dr. Harry J. Worthing, director of Pilgrim State Hospital, gave freely of his advice and guidance. Dr. Henry Wigderson did all the neurosurgery in these cases, and Dr. Edward Gray did the gross and microscopic pathological studies. Practically every psychiatrist on the Pilgrim staff, and every social worker, at one time or another, helped in gathering data and in evaluating patients before and after surgery.

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DISCUSSION OF "1,000 PREFRONTAL LOBOTOMIES." I

BY J. LAWRENCE POOL, M.D.*

Dr. Barahal's paper represents a tremendous amount of effort in the way of careful analysis. The 1,000 prefrontal lobotomies reported were all done by an excellent neurosurgeon, and were all done, as far as we can gather, by essentially the same technique. The current technique of lobotomy, about which I would like to speak later, offers some improvements, I believe. As to the results reported here, they are essentially the same as those from other similar large institutions. In other words, most of the institutional patients on whom lobotomies have been done in this country and abroad have been schizophrenics, and a great many of these operations have been done to alleviate aggressive, unmanageable behavior. In this respect, a great many of these patients have been improved by lobotomy, though they are still in hospitals, and others have been returned to their homes.

One or two points do come up, however, with respect to lobotomy operations for a more highly selected group of patients—such as those who are more nearly intact from an emotional and intellectual point of view than one is likely to find in a state hospital. These are patients of the severely depressed group, involuntal melancholics, some types of reactive depressives, obsessive-compulsive patients, and pseudoneurotic schizophrenics—the type so well described by Hoch. In this last category are the patients who are basically schizophrenic and unable to adjust to life, so that they are constantly unhappy and inefficient and yet are not sufficiently incapacitated to be institutionalized. About 80 per cent of these patients have been found to respond extremely well to lobotomy or allied operations and may be considered socially rehabilitated.¹

One must, therefore, recognize that, in private hospitals, where one is not likely to get so many chronic and unmanageable deteriorated cases, the improvement average is apt to be far better.

Other factors must be considered also: They concern the way the operation is actually done. It has been well established in the last 10 to 15 years by numerous research efforts and studies both here² and abroad—in some of which I have been privileged to participate—that it is essentially the *quantity* of frontal lobe disconnection that determines (a) the amount of improvement that might be expected, and (b) whether severe intellectual

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and emotional deficits result from such surgery. In other words, in a given patient, too little frontal lobe surgery in terms of quantity will not prove effective or perhaps will be only temporarily effective. In the same sense, too much frontal lobe surgery may impair the intellectual or thinking capacity, so that the patient may be made an imbecile. In a word then, the "quantity" of the surgery is extremely important from the point of view of postoperative results, in terms of improvement, and in terms of emotional and intellectual capacity.

This quantitative factor must be varied from case to case by the neurosurgeon, depending on the nature of the patient's illness, his intellectual capacity, and the degree of existing cerebral pathology, such as brain atrophy or arteriosclerosis. In other words, lobotomy today may be regarded as an art rather than a fixed or standard procedure.

One other factor brought out by Dr. Barahal is the matter of postoperative seizures. Here again I have found, as others have demonstrated, that the seizure incidence can be as high as 25 per cent or more following the so-called standard, old-fashioned lobotomy, a matter noted by Freeman himself. I have also found, with cortical ablations, that the nearer the operative scar is made to the motor cortex, the higher the incidence of seizures, so that, again, one might have 25 per cent postoperative seizures with cortical ablations close to the motor cortex, 15 per cent with ablations between the motor cortex and frontal poles, and only 7 per cent with operations in the extreme frontal poles.³ I have also found that, by limiting the lobotomy incision to a very small cut, no more than 5 to 6 mm. instead of 2 to 3 cm. in length, one again can reduce the incidence of seizures. This has been my practice during the last three years, and thus far none of these patients has had postoperative seizures, or, for that matter, has suffered from hemorrhages, incontinence or impaired intellectual capacity. This type of procedure constitutes a bimedial prefrontal lobotomy.

In summary then, it seems fair to realize that lobotomy can accomplish, in certain groups of patients, a great deal of benefit, with little or no intellectual or other type of complication. In other words, in the pseudo-neurotic schizophrenic group it has been demonstrated that 83 per cent of the patients are socially rehabilitated by lobotomy, after other measures have failed to help. In other groups, 33 per cent or more can be helped by this procedure, with the incidence of seizures 7 per cent or less with the newer techniques. These patients are not impaired intellectually by lobotomy. Indeed, five business men in my series are at work in New York City businesses requiring considerable intellectual ability and responsibility.

Other patients have married and are raising families happily and successfully following their operations, whereas they had been unable to adjust to society prior to surgery. These good results have held up now for some 10 years. When all other measures have failed—such as psychotherapy, drug therapy, and electric shock therapy—it is fair then, to give the patient the benefit of lobotomy, provided it is carefully and conservatively done, for then one may expect, in a properly selected patient, a good result with no intellectual or other complications.

In closing I would like to congratulate Dr. Barahal once more on his fine presentation—which is a tremendous undertaking. It is well presented, extremely well worth while, and has served as a great stimulus to all of us.

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DISCUSSION OF "1,000 PREFRONTAL LOBOTOMIES." II

BY CHRISTOPHER TERRENCE, M.D.*

When I was asked to discuss Dr. Barahal's paper, I was quite certain that this would serve as a requiem for the whole lobotomy program. However, after hearing it, I am not certain that this procedure should be relegated to the limbo of the forgotten, for he shows that there are still indications for lobotomy "after all other therapeutic efforts have failed." I consider this paper one of the better ones on the subject, and, in a general way, would agree with his conclusions from this long-term study.

I was intimately associated with the lobotomy program from 1948 through 1951 and in the succeeding four years in a more distant fashion. During those periods, I supervised the care of 400 lobotomy patients at Brooklyn (N.Y.) State Hospital and had superficial knowledge of another group of 250 patients at Rochester (N.Y.) State Hospital. At the latter institution I had data available on 224 patients whose present conditions could be estimated by direct or indirect means. Of this group of 224, 18 per cent are still out of the hospital, half of them making a good to marginal adjustment, and half still psychotic, remaining at home only because of good environmental conditions and lack of aggressiveness. The other 72 per cent are in state hospitals.

It is true that the majority of the patients lobotomized in this group had been psychotic in the hospital for more than two years, and the majority were of the so-called deteriorated group. It might be argued, therefore, that the treatment was a success, insofar as 18 per cent have been continuously out of the hospital for three years or more. Yet the raw statistics of a group of 104 patients treated by tranquilizing drugs a year ago—patients who in many ways were similar to those we formerly lobotomized, and whose illnesses were of long duration—showed, on recent study, a 21 per cent remission rate, with those in remission maintaining themselves out of the hospital for six months or more. In this light, therefore, the statistics indicate that when the tranquilized patient does improve, he shows a greater degree of change than the lobotomized patient.

At this point, I have reached the conclusion that there is rarely an indication in my present hospital population for a lobotomy. As a matter of fact, I have had none performed in the past year and only four in the past three years. I do not think, however, that the procedure should now be condemned because it did not bring to fruition the earlier hopes we had for improvement or cure in the chronic schizophrenic. In a way it did contribute considerably to our knowledge of neuropsychological function; it generated interest on the part of nonpsychiatric medical personnel in the mentally ill; and, according to Dr. Barahal, it still has a place in the treatment of our resistive, severely disturbed schizophrenics.

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DISCUSSION OF "1,000 PREFRONTAL LOBOTOMIES." III

BY JOSEPH ZUBIN, Ph.D.*

In a recent review of the literature on follow-up studies in the mental disorders, it became clear that most of the studies in this field do not report sufficient background information on their patients to permit a comparative evaluation of the outcome of treatment. Dr. Barahal's study, which we are now discussing, is different. It supplies the basic information necessary for evaluation, and the author is to be commended for his painstaking efforts. The minimum amount of information necessary for evaluation of therapy is: (1) ages of patients; (2) diagnoses; (3) duration of illness prior to treatment; and (4) duration of follow-up period.

There is one dissonant note here, however, and that is the timing of this study. It should have come when psychosurgery was in flower. It is a tribute to the vitality of present-day psychiatry that a method which promised so much initially has already been whittled down to the narrower limits of its usefulness. Despite this, Dr. Barahal's paper provides a sizeable population of carefully-followed-up patients, and the study can perhaps mark the end of an era. It should be noted, however, that though the rush into psychosurgery is now abated, there are still patients for whom psychosurgery seems to be the therapy of choice when all other methods seem to be of no avail. This is especially true in long-standing cases of pseudoneurotic schizophrenia, in which improvement rates as high as 80 per cent have been noted in cases where there has been a long duration of morbid anguish and enforced idleness.

I participated in a recently-published review of the literature on follow-up studies of somatic therapies in which the general trend of the results led to the conclusion that at least in early cases, the outcome of the somatic therapies (ECT, insulin and metrazol) seems to show no advantage over the nonspecific treatments available before the somatic therapies appeared on the scene. (See Figure 1.)

The data for psychosurgery were rather sparse and difficult to organize because insufficient information characterized these studies. But the best judgment regarding these studies also indicated that on five-year follow-up, no advantage could be found for psychosurgery over nonspecific therapy. (See Figure 2.) It should be noted that nonspecific treatment in both figures covers schizophrenic patients reported as recovered in "spontaneous remission" studies and in studies of recoveries during routine hospital care in the period before shock treatment was in use; ordinarily such patients had hydrotherapy, recreational therapy, occupational therapy, physical therapy and even short therapeutic interviews with physi-

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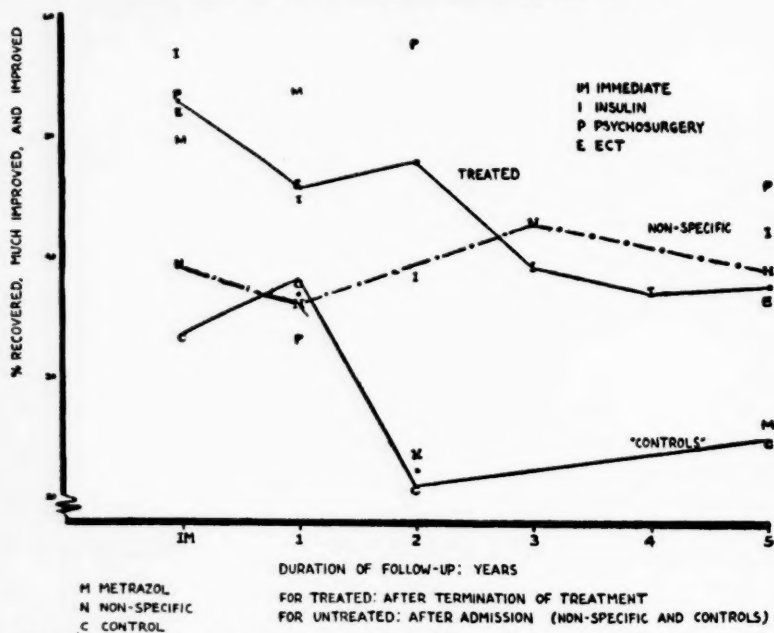


Figure 1. Outcome of treated (insulin, electric shock, metrazol and psychosurgery results averaged) schizophrenics vs. nonspecific-treatment and control groups.

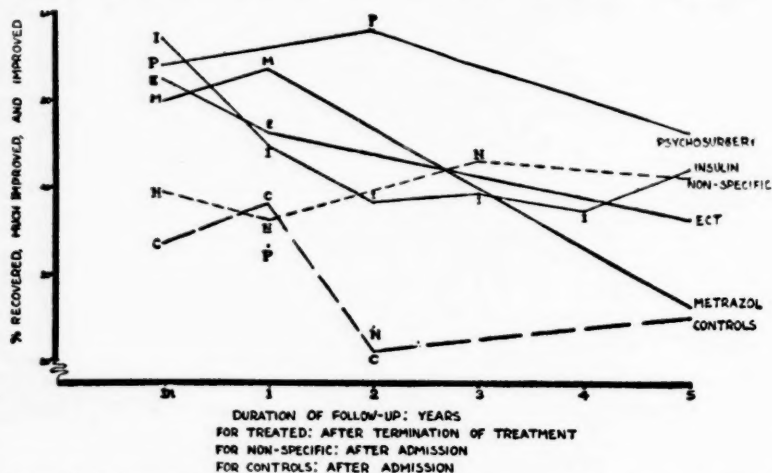


Figure 2. Outcome of schizophrenics treated with various somatotherapies as compared with outcome of those given nonspecific treatment (pre-shock) and those used as controls (schizophrenics).

cians. The controls, by contrast, were schizophrenics who had only routine hospital care during periods after shock treatment and psychosurgery had been introduced; for various reasons, they were not subjected either to shock therapy or psychosurgery; some were considered unsuitable; permission was refused for others, and so on.*

In the present study by Dr. Barahal, comparison is made between the lobotomized patients and patients considered suitable for operation but not operated on. Only 2 per cent of the latter were found to be at home on a five-to-10-year follow-up, in contrast to 21 per cent of the lobotomized group. Whether Dr. Barahal's unlobotomized patients constitute an adequate control group is questionable. It is likely that the reasons for rejecting an operation are not independent of psychiatric status, or of the family's attitude toward the return of the patient, or of the eventual outcome. It has become clear that the severity of illness and the degree of remission of symptoms are not the only criteria, on the basis of which a patient is released from the hospital. How he handles his residual symptoms, how readily the family and the community receive him, and a host of other factors, enter into the outcome of mental illness when outcome is judged by the patient's being in or out of the hospital.

Despite the fullness of the data available in this study, they present some difficulties in interpretation. Although data on diagnoses are given, no cross-tabulation of improvement by diagnosis is available. If several reasonable assumptions are made, however, one can obtain the data for outcome by diagnosis.

If only the patients of less than two years duration of illness are dealt with, and if the assumption is made that all the nonschizophrenics had less than one year duration, the following figures are arrived at for the schizophrenic group:

	Duration	
	Less than 2 years	More than 2 years
Number lobotomized	238	689
Number discharged	123	79
Percentage discharged	51.7	11.4

These figures of 51 per cent for patients hospitalized less than two years and 11 per cent for patients hospitalized more than two years would not be regarded as exceptional outcomes, if there had been no selection of the severer cases for psychosurgery. To what extent selection took place, and

*Figures 1 and 2 are reproduced by permission of the American Psychological Association from "A Biometric Evaluation of the Somatotherapies in Schizophrenia" by Virginia M. Staudt and Joseph Zubin in *The Psychological Bulletin*, 54:3, 171-196, May 1957 (Pp. 184 and 185).

to what extent this selection operated to reduce the expected spontaneous improvement rate, are difficult matters to estimate, though one feels sympathetic toward the statement that these improvement rates are rather high when compared to the average run of data for severely-ill patients from state hospitals.

The entire problem of how to evaluate the results of this study raises the more fundamental question of how one should go about the selection of a patient sample for the evaluation of any therapy, and of what methods one should use in the evaluation of outcome. When a study as good as this one leaves the question of evaluation somewhat hanging in the air, it is high time that we examine the whole problem of the evaluation of outcome of treatment and of mental illness in general. I have given much thought to this question during years in biometric research, and have come to the conclusion that nothing short of a specific prognosis for each patient under conditions of nonspecific therapy—a prognosis based on objectively-evaluated characteristics—can constitute the basis for a scientific evaluation of a given therapy. This specific prognosis must take into consideration the following areas: the premorbid characteristics of the patient, his morbid status, the course of his illness, and the evaluation of his probable rehabilitation, including rehabilitation after possible return to the community. Once this prognosis for each patient is determined, the outcome for the entire sample under conditions of nonspecific therapy can be predicted.

For a new therapy to be regarded as more efficacious, it must surpass the prognosticated outcome for nonspecific therapy, or for competing therapies. This is indeed a large program, and I have time only to deal with one aspect of it—the psychiatric characteristics, which have been found to be prognostic of outcome. Limiting one's self to the selection of patients whose prognosis is based only on their psychiatric characteristics would constitute a giant step in the direction of improving the evaluation of outcome of therapy. To this end, I reviewed the world literature on prognosis and found a total of several hundred traits which have been held to be prognostic of outcome. For psychosurgery alone, it has been possible

Table 1. Prognosis For Specified Premorbid Traits in Patients Undergoing Psychosurgery

		Number of Studies With Specified Prognosis		
		+	—	0
Premorbid Traits				
Personality	1. Absence vs. presence of shut-in personality	1		
	2. Good vs. poor premorbid adjustment	9		
Social and Vital Statistics	3. Jews vs. others	3		
	4. Poor vs. good education	1		
	5. Female vs. male	1		

to find nearly 40 traits thus far; and these have been tabulated according to the number of studies which indicated a good or a poor prognosis for each one.* (See Tables 1 and 2.)

Table 2. Prognosis For Specified Morbid Traits in Patients Undergoing Psychosurgery

Morbid Traits		Number of Studies With Specified Prognosis		
		+	-	0
Onset	6. Post 40 vs. earlier	1		
	7. Duration of symptoms less than two years vs. longer	15	3	
	8. Sudden vs. insidious	6		
Diagnosis	9. Paranoid syndromes	8	1	
	10. Catatonic syndromes	11		
	11. Hebephrenic syndromes		8	
	12. Mixed vs. simple schizophrenia	3		
Affect	13. Preserved vs. reduced affect	4	2	5
	14. Presence vs. absence of anxiety	11		
	15. Externally vs. internally directed aggression	2	1	
	16. Depression	1		
	17. Emotional reaction	3		
	18. Apprehension	2		
	19. Marked agitation	4		
	20. High psychic tension	8		
	21. Apathy and dull affect		3	
Thought Processes	Presence vs. absence of:			
	22. Delusions	2	1	
	23. Guilt	1		
	24. Hallucinations		2	
	25. Stupor	3		
	26. Autism		3	
	27. Deterioration		1	
	28. Confusion	1		
	29. Preserved vs. scattered thought processes	1		
Other Symptoms	Presence vs. absence of:			
	30. Hypochondriasis	1		
	31. Stereotyped behavior	1	1	
	32. Weight loss		1	
Course of Illness	33. Atypical vs. "textbook" symptomatology	1		
	Presence vs. absence of:			
	34. Favorable but transient response to previous somatic therapy	5		
	35. Previous episodes with remission	4		
	36. Immobility during first two years of hospitalization		1	

As can be seen, the presence of a shut-in personality bodes ill for outcome, while the presence of good premorbid adjustment has been found to be a good prognostic index in nine studies. Other items are shown similarly. It should be noted that the excess of females undergoing operation is in line with the better prognosis for females than for males. Whether this is because females of lesser severity of illness are more likely to be operated on than males of similar severity of illness is difficult to determine at this time.

In Table 2, duration of symptoms of less than two years standing was found to be of good prognosis in 15 studies and of poor prognosis in three. The current study that we are examining falls into line with this trend and increases the number of positive studies to 16. The author rightfully points out that duration of illness is difficult to determine; and he satisfies himself for the time being with the number of years of hospitalization. However, since the present vogue is to give treatment in extrahospital facilities and reserve hospitalization for those who fail to benefit from extrahospital treatment, the actual duration of hospitalization will come to be less and less important a factor as time goes on. Thus special efforts should be made to learn from the patient and his family, at the time of hospital admission, the actual duration of illness as far as possible. When diagnosis is considered, it becomes quite clear that Dr. Barahal's study also falls into line with the trend shown in Table 2, for paranoid, catatonic and mixed schizophrenies tend to have the better outcomes, while the hebephrenies tend to have the poorer. It is interesting to note that in the pre-1930 era, there was no evidence of this favorable outlook for paranoid schizophrenia. Only with the coming of the somatic therapies, was the trend altered.

An index based on these traits can readily be developed and used in future studies. It is possible that the use of similar indices for other therapies would help to select patients who are most suitable for each of the therapies and thus improve the outcome of therapy generally.

The question of whether lobotomy injures the patients' personalities, even when improvement takes place, is a difficult one to answer. The case histories provided in this paper lend some credence to the hypotheses that some defects attributable to the operation occur. In the early Columbia-Greystone studies, in which the topectomy type of operation was used, no definite evidence of defects attributable to the operation were noted, as long as the topectomy was performed in the anterior part of the frontal lobe. One must not forget that even spontaneously-recovered patients may show the scars of illness, especially if it has lasted several years. One interesting phenomenon observable in many lobotomized patients is early improvement following therapy, with gradual decline later on. The basis

for these temporary improvements and subsequent declines is, of course, difficult to fathom. By analogy with the investigation of the loss of familiarity, the *jamaïs vu* phenomenon, following electric shock therapy, one may postulate a similar aphasia-like behavior in the postsurgery patient, in which the patient ceases to be bothered temporarily by his anxiety and other affective disturbances. It would follow that such a loss of familiarity does not last very long, and that when it disappears, the entire force of the wave of returned familiarity with his own problems may overwhelm the patient.*

More recent follow-up studies, by Dr. Elaine Kinder with the help of Aaron Smith, in a still-unreported project, "Behavior Measures of Brain-Operated Schizophrenics," throw further light on this problem. The records of the patients who were included in the New York State Brain Research Project were examined. A comparison was made for 28 brain-operated cases (all topectomy operations) with 24 controls—out of an original total of 66 operated cases and 29 controls. These operations were completed in the spring of 1950.

a. In a comparison of pre-operative and follow-up study scores, after a postoperative interval of about eight years, the topectomized group showed consistently greater decrements than the controls in the Wechsler Bellevue subtests, the Porteus Maze, the Capps Homograph and the Weigl Color Sorting test. These differences are statistically significant in most of the areas tested.

b. The greater losses within the two subgroups of topectomized patients are shown by the "superiors." The superiors' operations involved Brodmann's areas 9 (and sometimes part of 10), 8, and 32. The other subgroups, the "orbitals," had operations involving Brodmann's areas 11 (and sometimes part of 10) and 47, as well as Walker's area 13. The superiors' losses are not only greater in magnitude but also occur in more subtests or test measures.

c. There is an apparent interaction between age and areas excised, the effects of which are related to the appearance of decrements in some specific measures. This is most marked in the case of older patients with either type of operative procedure. The younger orbital group shows the least attrition in scores after the interval of eight years.

d. These differences were not reported in the results of the original investigation and are assumed to be a function of the interval that has elapsed since psychosurgery.

*For a more detailed discussion of the *jamaïs vu* phenomenon following ECT, See: Zubin, J.: Objective studies of disordered persons. In: Andrews, T. G. (editor): *Methods of Psychology*. Wiley, New York, 1948.

Just as the early brain anatomists met the challenge of phrenology to determine whether the bumps of the cranium related to personality, so the neurosurgeons of today may have helped to determine whether brain physiology is related to mental disorder, and so may have pointed the road to the chemical revolution now taking place in psychiatry.

In summary, Dr. Barahal's study, done during the decline of enthusiasm for lobotomy, indicates that there may still be patients for whom psychosurgery is the method of choice. This certainly seems to be the case with long-standing pseudoneurotic schizophrenics, as Hoch and his colleagues have shown.

It is high time, however, that better control methods be instituted for evaluating the outcome, not only of psychosurgery, but of any therapy, including drug therapy. By utilizing individual prognostic methods, through the use of specific traits that bear on outcome, a much better evaluation of a given therapy can be obtained than by today's usual use of controls.

PILOT EVALUATION OF FLEXIN AS A TRANQUILIZING AGENT IN CHRONIC MENTAL DISORDERS*

BY BERNARD WILKENS, M.D. SIDNEY MALITZ, M.D.,
MURRAY GLUSMAN, M.D. AND PAUL H. HOCH, M.D.

RATIONALE

The object of this study was to evaluate the possible effects of "Flexin" (2-amino-5-chlorbenzoxazole) as a "tranquilizing" agent in a series of chronic mental patients. It was reasoned that since the action of flexin was neurophysiologically similar to two other drugs which have been reported to have an effect on psychic functioning—mephenesin and meprobamate—an investigation of its action on mental illness might result in similar findings.

Chronic patients were chosen for two reasons. They do not show the high incidence of spontaneous remissions so frequently seen in acute patients and so often attributed to the effect of drugs. The second is that they have frequently received a number of other drugs without sustained benefit so that the likelihood of improvement caused by suggestion is considerably lessened.

HISTORY

Flexin belongs to a group of motor-depressant drugs which includes glycerol ethers, benzimidazole and benzothiazole. These agents selectively depress the internuncial neurons of the spinal cord and brain stem. They differ from the curariform group of motor depressants, in that skeletal muscle relaxation is effected by central depression of polysynaptic transmission, rather than by action at the myoneural junction.

One of the drugs in this group is an aromatic glycerol ether, 3-o-toloxyl-1, 2-propanediol known as mephenesin, discovered in 1946.^{1, 2} It proved to be of value in inhibiting strychnine-induced convulsions and in relaxing muscle spasm.³ It has also been used in the treatment of tension and anxiety states.⁴ Various analogues of this drug have been synthesized, the most notable of which is meprobamate (2-methyl-2-*n*-propyl-1, 3 propanediol dicarbamate).⁵ Meprobamate has been reported to have considerable clinical value in the treatment of anxiety states, with or without clinically

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observable muscle spasm or tension.^{7,8} It has also been used with some success in the treatment of chronic psychotic patients.⁹

In 1943, Goodman¹⁰ demonstrated the efficacy of benzamidazole in diminishing voluntary muscle tone by selectively depressing subcortical and spinal polysynaptic transmission. This initiated the search for additional orally effective compounds capable of abolishing abnormal muscle tone and involuntary movement without impairing normal neuromuscular function.¹¹ One of the most effective agents emerging from this study was flexin. Kamijo and Koelle reported that flexin produced selective central depression of spinal, subcortical and brain stem polysynaptic reflexes, with low toxicity and minimal side effects.¹² In the same study, they concluded that the action at the neuromuscular junction is neither depolarizing nor curare-like.

The drug has been used with some success in relieving muscle spasm associated with a number of musculoskeletal and neurologic disorders.^{13,14} More recently, Dun and Ferguson¹⁵ reported testing flexin in a group of mentally ill patients and reported "it appears to relieve some tension and anxiety but its greatest value is in relaxing skeletal muscle."

MATERIAL AND METHOD

1. *Patients.* The study was undertaken with a group of 19 patients, 12 in-patients and seven out-patients at the New York State Psychiatric Institute. Eighteen of these had been diagnosed in this hospital as schizophrenic and one as psychoneurotic. All of the patients had been ill for periods ranging from two to 10 years and had responded poorly to previous treatment of any kind. Six of the group had had precoronal lobotomy operations and had shown little or no improvement for six to 36 months following surgery. (See Table 1.) In eight patients, the symptoms of tension and pan-anxiety were prominent and dominated the clinical picture. Manifestations of the anxiety and tension were tremors, tics, motor restlessness and somatic complaints. Of the other patients, eight had similar symptoms, which however, were superimposed on prominent primary schizophrenic features. Three patients did not complain of anxiety or tension. However, two of these had prominent tics, and one had severe urinary frequency which was of psychogenic origin. (See Table 3.)

Table 1. Diagnostic Category and Clinical Response

Diagnostic Category	No. of Patients	Postlobotomy	Improved*	Unimproved	No. of Placebo Effects
Schizophrenia			(3) (4)	(5)	
Pseudoneurotic type	6	(3)	0 1	5	1
Undifferentiated	6	(2)	0 0	6	1
Mixed	4	(1)	2 1	1	2
Simple	2	0	0 1	1	0
Psychoneurosis					
Mixed with severe anxiety	1	0	0 0	1	0
	19		2 3	14	4

*All improvements fell in the "3" and "4" categories of the Improvement Rating Scale. The full scale follows:

1. "Cured." Patient symptom-free and functioning well for at least five years.
2. Much Improved. Symptom-free and functioning well outside the hospital.
3. Improved. Majority of symptoms subsided. Patient functioning at a better level.
4. Slight improvement. Patient slightly more manageable in the hospital. Primarily an administrative improvement.
5. Unimproved. No change from baseline observations.

2. *Dosage Schedule*—Table 2 gives the maximum dosage and time on medication.

Table 2. Maximum Dosage Attained and Duration of Treatment

Daily Dosage mg.	No. of Patients	Days on Drug	No. of Patients
1,000	3	4	1
1,500	1	7	3
2,000	12	10	1
4,000	3	15	1
—	—	24	3
19	19	28	1
		31	1
		36	2
		43	1
		50	1
		62	1
		75	1
		113	1
		114	1
		—	19

No rigid schedules were followed in bringing the patient to the maximum dose range. The procedure depended primarily on the clinical response and the appearance of side effects. Due consideration was given to the dosage range noted in the literature and to the known toxicity of the drug.

To determine any change that was taking place in the clinical behavior of the patient, daily observations were made by the patient's therapist, and a weekly improvement rating given, against a baseline evaluation made before starting the patient on the medication.

3. *Laboratory Studies*—Routine blood, urine and liver function studies were done prior to starting the patients on the drug. The studies were repeated, at the end of the first week on medication, and every two weeks thereafter. An internist was available to investigate any unusual side effects or complications. The overall pattern of ward behavior and participation in activities was recorded daily by the nursing and OT staffs. Vital signs were recorded once a day and weights on a weekly basis.

Clinical Findings

The therapeutic effect of flexin in this series of patients was not clinically impressive. Of the 19 patients studied, only five showed some response to the drug. Two of these patients also showed some response to a placebo. Two other patients responded to the placebo alone. Three of the improved group showed no placebo effect; and, in these, there was a definite response to the medication. This improvement was described by the patients as a lessening of tension and was accompanied by a disappearance or improvement in the secondary manifestations of the tension and anxiety. One of these patients was a 23-year-old man (*Case 4*), in whom the diminution of anxiety was accompanied by a decrease in compulsive masturbatory activity. He also described himself as feeling "more relaxed and comfortable."

A second patient who showed improvement was a 34-year-old woman (*Case 7*) who had little overt tension and anxiety but had somatic manifestations, the most prominent of which was urinary frequency for which no organic etiology could be established. A definite diminution in this symptom was noted while the patient was on medication, and she spontaneously described herself as feeling much more comfortable.

Table 3. Individual Results With Flexin

No.	Age	Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
1	26	F	Schizophrenia, mixed type with paranoid and catatonic features. Overtly ill for one year, with marked anxiety, multiple phobias, preoccupation with obsessive ideas and one catatonic episode; 20 ECT's without improvement.	Yes. Felt slightly more relaxed than with flexin.	43	2,000 mg. (31 days)	4,000 mg. (12 days)	A questionable diminution in anxiety and tension at the 2,000 mg. dose. With 4,000 mg. no change in symptoms. Affect and ideation unchanged. No change in ward behavior. Worked without difficulty in psychotherapy.	Slight dizziness, light-headedness and drowsiness.
2	27	F	Schizophrenia, pseudoneurotic type with symptoms of pan-anxiety, extreme tension, hypochondriacal ideas and obsessive thoughts about killing herself, her mother or her child. No improvement with long term psychotherapy or several courses of ECT. Precoronal lobotomy in 1955 with improvement lasting one year, then a gradual return of anxiety and tension.	None	21	2,000 mg. (14 days)	4,000 mg. (7 days)	A slight diminution of tension and anxiety described by patient and noted by therapist and nursing staff while on 2,000 mg.	On 4,000 mg. appeared slightly depressed, complained of anorexia and nausea and vomited on two occasions. Medication discontinued.

Table 3. Individual Results With Flexin—(Continued)

No.	Age Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
3	31 M	Schizophrenia, pseudoneurotic type, characterized by tension, pan-anxiety and occasional episodes of panic. Fine tremor of hands and head, as well as prominent facial tic.	None	75	2,000 mg. (52 days)	4,000 mg (23 days)	No diminution in anxiety, tension, tremulousness or facial tic.	Complained of anorexia and mild nausea.
4	23 M	Schizophrenia, mixed type with paranoid and catatonic features. Episodes of increased anxiety and agitation. Previous treatment included long-term psychotherapy, ECT, insulin coma and a coronal lobotomy. Transient improvement was noted following each course of treatment, and he was able to leave the hospital and find a job. However considerable anxiety and tension remained, and he continued compulsive masturbation.	None	114	2,000 mg.	Same	A moderate diminution in anxiety and a decrease in compulsive masturbatory activity.	None.

Table 3. Individual Results With Flexin—(Continued)

No.	Age	Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
5	26	M	Schizophrenia, pseudoneurotic type. The clinical picture was one of constant anxiety, tremor of head and hands, difficulty in concentration, stammering and bouts of alcoholism. Intensive psychotherapy without improvement. Following a precoronal lobotomy there was some improvement in all symptoms but continued to have considerable anxiety and tension.	Yes	113	2,000 mg.	Same	Described himself as feeling "more relaxed," no more than during placebo trial. No change in affect or ideation.	None
6	33	F	Schizophrenia, undifferentiated. Prominent anxiety and somatic delusion included a feeling of "tightness" in the muscles of her arms and legs "like they are filling up with gas and when I belch it relieves them."	Yes	62	2,000 mg.	Same	No effect on anxiety, tension, somatic delusions, affect or ideation.	Mild anorexia accompanied by weight loss during last four weeks.

Table 3. Individual Results With Flexin—(Continued)

No.	Age	Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
7	34	F	Schizophrenia, simple type with prominent somatic symptoms and phobias about drinking and eating. Complained of urinary frequency, dry mouth and difficulty sleeping. Very little overt anxiety or tension.	None	36	2,000 mg.	Same	A moderate diminution in the urinary frequency was reported. Other symptoms remained unchanged.	None
8	33	F	Schizophrenia, mixed type with paranoid and catatonic features. Prominent anxiety, tremor of the head and hands and twitching of the eyelids. A gross thinking disorder and disturbance of affect were clearly apparent. Treatments had included psychotherapy, ECT and combined insulin-ECT.	None	31	2,000 mg.	Same	Diminution of the tremor, muscle tension and twitching of the eyelids noted during the first and second week of treatment, then a gradual return of these symptoms.	She developed a toxic hepatitis during the fourth week. It subsided after the medication was discontinued.

Table 3. Individual Results With Flexin—(Continued)

No.	Age	Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
9	38	F	Schizophrenia, pseudoneurotic type, characterized by multiple neurotic symptoms, extreme tension, panic, anxiety, episodes of severe depression and seclusive behavior. No response to ECT. Some improvement while on thiorazine.	None	24	2,000 mg.	Same	No subjective improvement. Ideation unchanged. Reported by the nursing staff as appearing more relaxed and outgoing.	None
10	33	M	Schizophrenia, simple type with some obsessive-compulsive features, the most outstanding being compulsive movements of the hands and fingers, paranoid ideation and a history of visual hallucinations. Anxiety-ridden and sleepless. Treatments included psychotherapy ECT and insulin coma without lasting improvement.	None	24	2,000 mg.	Same	No significant change in anxiety, compulsive activity or sleep pattern.	None

Table 3. Individual Results With Flexin—(Continued)

No. Age Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
11 29 M	Schizophrenia, undifferentiated type. Overt tension not evident. Easily angered, hostile. Severe tension headaches. No improvement with previous ECT or insulin coma.	None	15	2,000 mg.	Same	No improvement.	None
12 43 M	Schizophrenia, paranoid type. In addition to a well-structured delusional system there was severe anxiety, tension and frequent panic attacks. Moderate fine tremor of the hands and bilateral periorbital tic.	None	10	2,000 mg.	Same	No improvement. Complain of a frontal headache and the return of an old symptom—subjective vertigo.	None
13 19 F	Schizophrenia, pseudoneurotic type. Extremely tense, anxious, multiple phobias and hypochondriasis. Episodes of severe psychogenic vomiting. Progress with psychotherapy resulted in discharge from hospital.	None	7	2,000 mg.	Same	No change in anxiety, tension or psychogenic vomiting. Ideation and affect unchanged. She described feeling slightly drowsy and "loosening up" in the afternoon. She said, "I felt like one of my friends who was taking miltown felt."	Occasional dizziness and light-headedness one to two hours after medication.

Table 3. Individual Results With Flexin—(Continued)

No.	Age	Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
14	29	M	Psychoneurosis, mixed type with severe anxiety. Moderate improvement with psychotherapy and on thiorazine.	Similar to flexin.	7	2,000 mg.	Same	Taken off thiorazine and started on flexin. There was a rapid return of the severe anxiety and tension.	None
15	31	M	Schizophrenia, undifferentiated type. Antisocial, confused and delusional. Uncooperative on the ward. Some improvement following ECT 10 years before. No improvement with ECT during past year.	None	4	2,000 mg.	Same	No improvement. The patient complained of increasing anxiety—"medicine does not help me" and refused to take it after four days.	None
16	38	M	Schizophrenia, undifferentiated type. Withdrawn, seclusive, feelings of unreality and depersonalization, accompanied by peculiar bodily sensations. Severe tension headaches. No improvement with combined insulin coma and ECT. Slight improvement following pericoronal lobotomy.	Yes. Slight relief of headache and "a little more relaxed."	36	1,500 mg.	Same	No improvement. Symptoms remained unchanged. Occasionally complained of "feeling like a pressure on me."	None

Table 3. Individual Results With Flexin—(Continued)

No.	Age Sex	Diagnosis	Placebo Response	Days on Drug	Starting Daily Dose	Maximum Daily Dose	Effects	Clinical Side Effects
17	41 F	Schizophrenia, undifferentiated type. Extremely tense, fixed delusions, obsessive thinking and moderately depressed. Transient improvement with psychotherapy, ECT or combined insulin-ECT. Moderate improvement following precoronal lobotomy with subsequent discharge from hospital. Gradual return of symptoms over past year.	None	50	1,000 mg	Same	No change in symptoms.	None
18	43 F	Schizophrenia, mixed type with marked anxiety, multiple phobias, feelings of unreality, obsessive-compulsive ideas, emotional lability, depression and hopelessness. Much improved following intensive psychotherapy and ECT, 10 years before. Gradual return of symptoms over past year. Some improvement with phenothiazines.	No placebo given.	28	1,000 mg.	Same	No improvement. Anxiety, tension, and phobic pattern not modified. Affect and ideation unchanged.	None

Table 3. Individual Results With Flexin—(Continued)

No.	Age Sex	Diagnosis	Placebo Response	Days on Drug	Starting		Maximum		Effects	Clinical Side Effects
					Daily Dose	Daily Dose	Daily Dose	Daily Dose		
19	36 F	Schizophrenia, pseudoneurotic type. Pan-anxiety and marked tension, prominent features. Also urinary urgency and frequency related to anxiety. Precoronal lobotomy without improvement. No response to phenothiazine, "tranquilizers" or miltown. Slight transient improvement with ECT after lobotomy.	None	7	1,000 mg.	Same			No improvement. Medication discontinued because of increase in severity of symptoms.	None

The third patient was a 33-year-old woman (*Case 8*) whose improvement was shown by a significant diminution of a tremor of her head and hands, and a significant diminution of muscle tension and of a periorbital tic. This effect was noted during the first and second weeks of therapy. In the fourth week of medication she developed a toxic hepatitis and the drug was discontinued. All psychogenic symptoms recurred after several days, in their original degrees of severity.

One patient (*Case 5*) described what seemed to be a "tranquilizing" effect during the trials of both the placebo and flexin; the qualitative and quantitative clinical responses being essentially similar. Another patient (*Case 1*) showed slightly more improvement while receiving a placebo.

There was no significant change in the affect or ideation of any patient. No significant changes in sleep patterns or dream content were reported.

Side Effects

Nausea was experienced by three patients while on 2,000 mg. daily and one of them began to vomit a week after the dose was raised to 4,000 mg. daily. Two patients complained of definite blunting of their appetites. Despite these symptoms, weights tended to remain fairly stable, with fluctuations ranging from one to five pounds in several of the group.

Two patients experienced a syndrome of dizziness, light-headedness and drowsiness, which began during the first week on a dosage of 2,000 mg. daily. These effects were never so severe or incapacitating as to require discontinuation of the medication, and diminished considerably during the second and third weeks. One patient reported feeling moderately drowsy 30 minutes after each dose of 500 mg.

Toxic Hepatitis. The most serious side effect occurred in the 33-year-old schizophrenic woman (*Case 8*) who developed the toxic hepatitis. It was attributed to the medication, 2,000 mg. daily. She had been on flexin for four weeks. The following report describes the case details:

1. Prior to this episode she had received the following drugs:

October 2—April 2, 1956	NP 208 (Brom-piperidino-chlorphenothiazine) 300 mg. daily
April 2—April 30th	No medication.

May 2—May 7, 1956	Meprobamate, 800 mg. at bedtime for sleep if necessary.
May 7—June 5th	Flexin, 500 mg., q.i.d. Doriden (glutethamide), 250 mg. (two or three times a week) for sleep.

2. On June 5, after 30 days on flexin, the routine thymol turbidity test showed a sharp rise to 10 U. from 2 U. eight days before. The patient was afebrile. Physical examination by the internist revealed a slight scleral icterus but was otherwise entirely negative. The patient reported that she had noted light-colored stools during the previous week. All medication was discontinued.
3. In collaboration with the Columbia-Presbyterian Medical Center's Department of Internal Medicine, a complete medical work-up was done. Additional laboratory tests showed the following:
 - a. Urine—positive for bile.
 - b. Ceph. flocculation—3+.
 - c. Bilirubin—0.9 mg.
 - d. Cholesterol—272 mg.
 - e. Hgb.—14.0 mg.
 - f. Total WBC—11,300; Differential, Poly. 61, Lymph. 27, Eos. 5, Mo. 7.
 - g. Alkaline phosphatase—6.2.
 - h. Heterophile agglutination—1.4 (negative).
 - i. Prothrombin time—16 seconds.
4. The diagnostic impression of the internist was "toxic hepatitis, probably due to flexin."
5. During the next three days, the scleral icterus disappeared; and over the next two weeks, all liver chemistries returned to normal values. A drop in blood eosinophils also occurred. During this period, the patient had no clinical symptoms of liver disease.
6. After the liver function studies had remained normal for two weeks, the internist recommended that the patient receive small test doses of flexin over a five-day period. The liver function tests were repeated at the end of this period and found to be normal.
7. There was no recurrence of clinical symptoms. The laboratory tests were repeated a month later and were all normal again. It was felt by the medical department that the hepatitis was most probably a direct toxic effect of flexin on the liver. The absence of recurrence with the test doses was predicted, and this was likened to cases of uranium nephrosis which does not recur on re-exposure to the toxic substance after healing occurs.

General Laboratory Findings. In addition to the case described, four patients showed a slight leucocytosis during the period of medication. The white counts ranged from 11,000 to 12,800. No significant shift in the differential counts occurred. Except for the one case of toxic hepatitis, the liver function studies remained within normal limits as did the hemoglobin and urinalysis.

SUMMARY AND CONCLUSIONS

1. Flexin was administered to 19 patients (18 schizophrenics and one severe psychoneurotic) in a dosage range of 1,000 to 4,000 mg. to observe its effect on anxiety, tension and related symptoms. Only three patients of the 19 showed clinical changes which appeared to be attributable to the drug. These consisted of lessening of tension, diminution in anxiety and a disappearance of, or improvement in, secondary manifestations. The changes, however, were not pronounced. It was felt, therefore, that flexin could not be classified as an effective tranquilizing agent in chronic mental disorders.

2. Affectivity and ideation were unchanged with the drug.

3. Since one patient developed a transient toxic hepatitis, possibly associated with this drug, care should be taken not to administer it to patients with previous histories of liver disease. Periodic liver function tests on all patients receiving this drug appear advisable.

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PSYCHODIAGNOSIS AND PSYCHODYNAMICS FROM AN OBJECT-RELATIONS FRAME OF REFERENCE

Application of the Kerman Cypress Knee Projective Technic (KCK)

BY EDWARD F. KERMAN, M.D.

A new stimulus object, the cypress knee, used as the basis for a new projective technic, has a number of inherent attributes that make it particularly well suited for this purpose. This outgrowth from the roots of the cypress tree is, naturally, three-dimensional. Deriving from a tree growth, it is obviously, unstructured. Ambiguous and tortuous in form, it serves as an ideal motivator of imaginative responses. Viewed from different perspectives, it engenders an endless variety of images. As an ornamental or decorative object, a "natural sculpture," it invites human preference or dislike, lending itself well to object-choice. As a solid figure it is subject to handling or avoidance of contact. But, both unique and relevant to its use as a stimulus object in a projective technic, is its capacity to serve as an object-representation.

Using rubber replicas of six original cypress knees, the three-dimensional projective technic, known as the Kerman Cypress Knee Projective Technic (KCK), has been devised. A preliminary report on this technic¹ dealt with the use of these stimulus materials. The method of administration was described. A second article² was devoted to a search for object-representations symbolized by the individual stimulus objects.

To review briefly,¹ there are three major testing situations applied to the six cypress knees: (1) object-choice, subdivided into (a) preferential sequence, and (b) value judgment; (2) projective images; and (3) story construction.

Later discussion² concerned a phase in this research designed to (1) establish a theoretical basis for the technic, and (2) in the light of this basic theory assign meaning to the test materials as object-representations. The theoretical basis upon which the KCK rests is Fairbairn's object-relations theory of personality.³ The object-representations of the six cypress knees, as so far determined (by analysis of the records of 10 subjects), may be summarized as follows:

- Object 1, with its two "imperfection spots," is generally regarded as a "bad object," but may also be a "father" or "authority" representation.
- Object 2, the largest specimen, is a "father" or "authority" representation.
- Object 3, the smallest specimen, is a "child" or "dependency" representation.
- Object 4, recognized by many subjects as a penis, is a "sexual object" or, because of its smallness, a "dependency" representation.
- Object 5, the most complex of all of the specimens, is frequently regarded as a "good object," a "harmless" or "toy" or "animal" symbol, usually a "non-human" object-representation. Part of this complex object may be seen as something different from this; and the whole specimen may be endowed with the attributes of that part.
- Object 6, is a "mother" representation, but also contains a "father" (when seen as two lovers) and a "child" (when seen as mother and child).

The present report seeks to carry on this search for object-representations, as well as to extend the previous research in two hitherto unexplored directions. These are (1) an inquiry into the technics used by patients—according to Fairbairn's theory—in dealing with internalized as well as external objects and (2) a study of the problem of psychodiagnosis.

It would be impossible here to review the entire object-relations theory. It is necessary, however, to bring up certain elements of this theory, upon which the interpretation of the KCK records depends.

Libido is considered to be essentially object-seeking. Erotogenic zones are not in themselves primary determinants of libidinal aims, but are channels mediating the primary object-seeking aims of the ego.

The process of ego-development is regarded as having three stages: (1) a stage of infantile dependence, corresponding to Abraham's "oral phases"; (2) a transitional stage; and (3) a stage of adult or mature dependence, corresponding to Abraham's "genital phase."^{*}

Schizophrenia and depression are considered to be etiologically related to disturbances of development during the stage of infantile dependence—with schizophrenia related to difficulties arising

^{*}Fairbairn's theory considers man forever dependent on others, hence he distinguishes between the stages of infantile dependency and the stage of mature dependency.

ing in object-relationships over sucking (loving), and depression related to difficulties arising in object-relationships over biting (hating).

Obsessional, paranoid, hysterical and phobic symptoms are held to be of etiological significance because they reflect the operation of four specific technics that the ego uses in attempts to deal with difficulties arising over object-relationships during the transitional stage. The difficulties themselves arise from the endopsychic situations that result from the internalization of objects with which the ego had relationships during the infantile-dependence stage. These four transitional technics operate functionally as defenses against the emergence of schizoid and depressive tendencies, which themselves originate during the first stage of ego-development.

Based on this theory, then, the records of eight patients are considered in the present writing and are analyzed in the light of their object-representations and their technics for dealing with them. Six patients were purposely selected to illustrate the object-relations of the six major types described by Fairbairn: the schizophrenic, the depressive, the paranoid, the obsessional, the phobic and the hysterical. Two additional records were included: the case of a delinquent to illustrate "moral defense," and one of a senile to give an example of the organic reaction type.

CASE STUDY 1

Record of a Schizophrenic Subject

Basic Theory. The emotional conflict which arises in relation to object-relationships during the early oral phase takes the form of the alternative, "to suck or not to suck," that is "to love or not to love." This is the conflict underlying the schizoid state. The great problem of the schizoid individual is how to love without destroying by love. The devastating nature of the conflict associated with the early oral phase lies in the fact that, if it seems a terrible thing for an individual to destroy his object by hate, it seems a much more terrible thing to destroy it by love.

It is because his love seems so destructive that the schizoid person experiences such difficulty in directing libido toward objects in outer reality. He becomes afraid to love; and, therefore, erects barriers between his objects and himself. He rejects his objects; and at the same time he withdraws libido from them. This withdrawal of libido may be carried to any lengths. It may reach a

point at which all emotional and physical contacts with other persons are renounced; and it may even go so far that all libidinal links with outer reality are surrendered. Here all interest in the world around fades, and everything becomes meaningless. As far as the individual is concerned, the world of internalized objects is always likely to encroach upon the world of external objects; and, in proportion as this happens, his real objects become lost to him.

What chiefly compromises the integrity of the ego in this situation is the apparently insoluble dilemma which attends the direction of libido toward objects. Failure to direct libido toward an object is equivalent to loss of the object; but since, from the point of view of the schizoid person, libido itself seems destructive, the object is equally lost when libido *is* directed toward it. This may result in a complete impasse, which reduces the ego to a state of utter impotence. This gives rise to the characteristic affect of the schizoid state, which is a sense of futility.

The schizoid state is associated with an unsatisfactory object-relationship during the early oral phase. This is most likely to give rise to its characteristic psychopathological effects when object-relationships continue to be unsatisfactory during the succeeding years of early childhood. The schizoid state must, accordingly, be regarded as largely dependent upon a regressive reactivation, during subsequent childhood, of situations arising during the oral phase. The traumatic situation is one in which the child feels that he is not really loved as a person, and that his own love is not accepted. If the phase in which infantile object-relationships have been pre-eminently unsatisfactory is the early oral phase, this trauma provokes a reaction conforming to the idea that the child is not loved, because his own love is bad and destructive; and this reaction provides the basis for a subsequent schizoid tendency. Whether, in any particular case, a schizoid tendency will eventually give rise to an actual schizoid state, depends in part upon the circumstances which the individual is called upon to face in later life; but the principal determining factor is the degree to which objects have been incorporated during the early oral phase.

The various defensive techniques which characterize the transition period (the obsessional, paranoid, hysterical and phobic techniques) all represent attempts to deal with the difficulties and conflicts

that attend object-relationships because of the persistence of incorporated objects. These defensive technics may resolve themselves into differing methods of controlling an underlying schizoid state. Where a schizoid tendency is present, they represent methods designed to avert the ultimate psychopathological disaster which follows from *loss of the ego*.

Clinical Profile

A 51-year-old, single, white man has been continuously hospitalized at Spring Grove (Md.) State Hospital for 25 years. He is markedly withdrawn, occupying himself with nothing. He lives on a closed ward devoted to the care of chronically ill patients, and he may be seen at all times sitting in a chair, head bowed, staring vacantly at the floor. He responds to questions with short, simple replies spoken without any expression of emotional tone.

Test Performance

Behavior. The subject sits rigidly, practically immobile, in a chair, as he faces the test objects and the examiner. He appears apathetic and withdrawn. He offers no spontaneous comment and answers questions briefly. He does not handle the objects at all although he has been told that he may do so if he likes. Toward the end of the interview, this avoidance of contact was tested by the direct command: "Go ahead and pick them up," to which he replied simply, "No."

Preferential Sequence: 5-1-4-6-3-2.

The subject shows marked negativism when asked to indicate preferences among the objects. He says, "Well, I don't know." With successive promptings, he makes the following statements: "I couldn't tell you." "What would you—what meaning am I supposed to get out of it?" "I don't believe I like any of them." Finally, and with marked reluctance, he makes the following choices in the order numbered: 5-1-4-6-3-2.

Value Judgment (recorded by object numbers):

- 5: "I don't know. Just the shape—the shape—the way it's done."
- 1: "Nothing that I know of. It's an ornament. [Do you like it?] I guess so."
- 4: "That's plain, ordinary, that's about all."
- 6: "I don't know what there is to like or dislike about it."
- 3: "That's in the shape of a rat. [How do you feel about it?] Nothing that I know of."
- 2: "Its extra large proportions. It's the largest one. [Why did you select it last?] I could have picked it out first one."

Projective Images:

- 5: "I can't see anything in there. It looks like an elephant or something."
1: "I can't see anything there outside of what's shown."
4: "Nothing that I know of."
6: "A lady or something."
3: "Looks like a rat. Nothing else."
2: "It looks like a head up the top."

Story Construction:

"I can't. [You saw an elephant, a lady and a rat. Can you tell me a story about them?] No, I don't think so."

Recall: 5-1—4-6—3-2.

Interpretation

The attitude of this schizophrenic subject toward the test objects indicates his failure to direct his libido toward external objects. He engages in this task with the same affective display of futility that characterizes all of his relations with such objects.

His reluctance to indicate a preferential sequence demonstrates clearly his rejection of objects of the world of outer reality. His internalized objects are kept separate and apart from his external objects and he prefers to keep them disjoined. He does not care to make a libidinal investment in the test objects and, therefore, resists the suggestion to indicate a preference. His initial remarks about them are noncommittal, such as, "Well, I don't know," and, "I couldn't tell you." Pressed to make a choice, he tries to pass the burden to the examiner by asking, "What would you—what meaning am I supposed to get out of it?" With more pressure exerted upon him, he still tries to avoid emotional involvement with these external objects—with a mild, all-embracing rejection of them: "I don't believe I like any of them." When he realizes that he cannot escape the task, he indicates his choices with a total lack of feeling or conviction.

His renunciation of physical, as well as emotional, contacts with external objects is displayed in his strict avoidance of contact with the cypress knees. Ordinarily, direct commands to pick them up are not given. But, as the test nears completion, it seems certain that this patient will not handle them even if directly ordered to do so. This anticipated response comes in his blunt refusal to pick up any of them.

As one might expect, in a record characterized by such a paucity of responses, there are few direct indications of the object-representations of the test objects. The clearest of all is the rejected "dependency" representation of Object 3. Twice the subject recognizes it as a "rat"—which would appear to indicate his perception of its smallness (a rat being a small animal) and its undesirability (also inherent in the rat). This recognition of its smallness naturally implies its "dependency" symbolism which, to a schizophrenic, who has surrendered all libidinal links with the outer world, is unacceptable. It characterizes his own state of impotence which is the disaster that befell him in his failure to outgrow his early oral stage of dependence.

In Object 6, he sees "a lady or something." Object 6 is, of course, the object-representation of the "mother." His qualification of the "lady" with the phrase "or something" is evidence of libidinal renunciation of this disappointing figure of his infancy. This interpretation is supported by his statement, "I don't know what there is to like or dislike about it."

In all probability, he regards Object 2 as a "father" representation. He speaks of "its extra large proportions," calls it "the largest one," and endows it with human attributes by seeing something "like a head up the top."

One suspects that he sees Object 5 as the "good object," because (1) he perceives an animal, "an elephant," in it, and (2) because he places it in first position in the sequential order.

There are no direct statements in the record to indicate the object-representations of Objects 1 and 4.

Some information may be gained by an analysis of the sequential order. Probably the most striking feature of this is the placement of Objects 6, 3 and 2 in the fourth, fifth and sixth positions. The "mother," "child" and "father" representations are, thus, least acceptable to this schizophrenic subject; and the big, threatening "father" is placed last. The subject's lack of libidinal investment in any of the objects is well demonstrated by his statement about this, his least preferred one: "I could have picked it out first one." The rejected "dependency" symbol, the "rat" with which he apparently identifies, has a lowly position. This finding is in keeping with the basic theoretical consideration that the attitude of the schizoid in relation to objects of the world of outer reality is essentially one of inferiority. His placement of the "mother" symbol

in fourth position indicates, as does his phrase "a lady or something," that the mother in the outer world is an unacceptable object as an outlet for his libidinal aims.

Three objects that he finds more acceptable are 5, 1 and 4. The "good object" (5), being "harmless" and "nonhuman," heads the list. It is difficult to evaluate the positions assigned to Objects 1 and 4, since the subject does not identify them as specific object-representations. These are, in all probability, made his second and third choices because they are less significant than the rejected mother-father-child group and are, therefore, more preferred or, to state it more pertinently, less rejected. It will be recalled that Object 1 is regarded as "an ornament," of which he says, "I can't see anything outside of what's shown." Object 4 is simply "plain, ordinary, that's about all."

One may conclude, therefore, that the sense of his preferential sequence resolves itself simply to this: His first three choices are essentially nonhuman representations; his last three, human object-representations.

Fantasy is apparently too painful to this subject to permit him to construct a story. Or the distrust he feels for external objects may be too threatening to allow sharing a fantasy with the examiner. Whichever the answer may be, this subject displays the same sort of block that one sees so frequently in the TAT records of schizophrenic subjects.

The entire record, in all of its manifestations, reveals the disastrous consequences of *loss of ego* which, above all else, characterizes the schizophrenic reaction.

CASE STUDY 2

Record of a Depressive Subject

Basic Theory. The conflict which characterizes the late oral phase resolves itself into the alternative, "to suck or to bite," i.e., "to love or to hate." This is the conflict underlying the depressive state. The great problem of the individual is how to love without destroying by hate. Accordingly, it is the disposal of his hate, rather than the disposal of his love, that constitutes the great difficulty of the depressed person. Formidable as this difficulty is, the depressive is at any rate spared the devastating experience of feeling that his love is bad.

Since his love, at any rate, seems good, he remains inherently

capable of a libidinal relationship with outer objects in a sense in which the schizoid is not. His difficulty in maintaining such a relationship arises out of his ambivalence. This ambivalence in turn arises out of the fact that, during the late oral phase, he was more successful than the schizoid in substituting direct aggression (biting) for simple rejection of the object. While his aggression has been differentiated, however, he has failed in some degree to achieve that further step in development which is represented by dichotomy of the object. This further step, had it been adequately achieved, would have enabled him to dispose of his hate by directing it, predominantly at least, toward the rejected object; and he would have been left free to direct love which was relatively unaccompanied by hate toward his accepted object. Insofar as he has failed to take such a step, the depressive remains in the state which characterized his attitude during the late oral phase—a state of ambivalence toward the incorporated object.

The presence of such an inner situation is not disabling as far as one's outer adjustments are concerned. He readily establishes libidinal contacts with others; and, if his libidinal contacts are satisfactory to him, his progress through life may appear fairly smooth. Nevertheless, the inner situation is always present, and it is readily reactivated if his libidinal relationships become disturbed. Any such disturbance immediately calls into operation the hating element in his ambivalent attitude; and, when his hate becomes directed toward the internalized object, a depressive reaction supervenes. Any frustration in object-relationships is functionally equivalent to loss of the object, whether partial or complete; and, since severe depression is so common a sequel to actual loss of the object (whether by the death of a loved person or otherwise), loss of the object must be regarded as the essential trauma which provokes the depressive state.

Whether in any given case a depressive tendency will eventually give rise to an actual depressive state depends, in part, upon the circumstances which the individual is called upon to face in later life; but the principal determining factor is the degree to which objects have been incorporated during the late oral phase. The various defensive technics which characterize the transition period all represent attempts to deal with difficulties and conflicts attending object-relationships in consequence of the persistence of incorporated objects. These defensive technics may resolve them-

selves into differing methods of controlling an underlying depressive state. Where a depressive tendency is present, they represent methods designed to avert the ultimate psychopathological disaster which follows from the *loss of the object*.

Clinical Profile

The patient is a 37-year-old, married, Negro woman who came to the office in a state of severe depression. She was normally extraverted; and her illness had had its onset two months before the initial interview with her. It was precipitated by "some ugly rumors" concerning an extra-marital affair of her husband, 19 years her senior. She lost 27 pounds, had a severe aggressive outburst in which she broke an expensive set of china, and was continuously depressed, tearful and sleepless. She said, "If I wasn't so religious I would kill myself."

Test Performance

This patient's record, reviewed previously,² primarily for study of the object-relationship significance of the test objects, is presented again to illustrate, in the light of Fairbairn's theory, the techniques employed by the depressive toward his objects. She had only the object-choice part of the test, but it is felt that her responses were so highly significant with this abbreviated technique that they could be used to illustrate the reaction of a depressive subject.

Behavior. The patient is very tearful and markedly depressed; but she is able, during the progress of the test, to suppress her tears and show interest. She handles the accepted objects freely but avoids contacts with the rejected ones. She exhibits extremes of affective response to them, showing feelings of love and warmth toward Objects 6, 3 and 5 and intense hostility toward Objects 2, 1 and 4.

Preferential Sequence: 6-3-5-4-1-2.

Value Judgment:

- 6: "It gives you a sensuary feeling [By "sensuary" she means "something that gives you an inner feeling of peace—of holiness."] The idea of the Blessed Mother. It looks like a statue standing there. She just isn't in color. It just isn't straight in form—but it looks like it would be a statue."
- 3: "I like it. It makes me think about a little child. Just a little child that you love. It looks like a small thing that you can caress. I like small things. Something small that I can adore. Like a child that I can have authority over. That I can take care of—or possess it."
- 5: "Same as the first. The trees and the Blessed Mother. It looks like hair flowing down the back of the Blessed Mother by a tree. I like it."

- 4: "[Blocks strongly] I don't feel nothing about that. I don't think nothing about it."
- 1 and 2: "These two look hideous to me."
- 1: "It's just frightening. I can't put it into words. It just gives me the shivers."
- 2: "It's ugly. Looks like it's grotesque. Something that would devour you. I can't put it into words. It's something that's frightening."

Interpretation

This patient's response to the cypress knees provides a striking demonstration of the dynamics of the depressive state. It indicates clearly the value of these stimulus objects as object-representations and illustrates the technics of the depressive individual in dealing with them.

The clinical diagnosis of a manic-depressive reaction is obvious in this case. The underlying personality is extraverted, and the illness is a severe depression connected with the loss of an object—her husband whose extramarital adventure meant the loss of his love and, therefore, a loss of him as a love object.

The object-representations of all six test objects seem well defined. The "mother" representation is found in Objects 6 and 5. In the former, she perceives, "the idea of the Blessed Mother"; in the latter, "the trees and the Blessed Mother." The "child" representation with which she identifies, is clear in her response to Object 3: "It makes me think of a little child. Just a little child that you love." Object 4, although unnamed as such, is doubtless seen as the "sexual object" or phallic symbol. Her strong blocking and marked rejection of this object suggest this representation. The "father" representation is to be found in the two "hideous" specimens, Objects 2 and 1. These are generally male representations and, in the light of the patient's responses to them, there seems little question of her perception of them as such. Object 1 represents not only the "father" but the "bad object" as well.

The problem of how to love without destroying by hate, the basic dilemma of the depressive, comes out plainly in her emotional reaction toward these object-representations. Unable to accept or reject, that is, forgive or divorce, this "father" who has betrayed her, she exhibits the ambivalent attitude so characteristic of the late oral phase. Her husband, who is 19 years older than she, was probably selected as a mate because he was a father-representa-

tion. As long as he remained the good father, the patient was able to establish satisfactory libidinal contacts with him and other objects in her life. She says of her pre-psychotic personality, "I love to dance and sing." With his adulterous act, the husband calls into operation the hating elements of the patient's ambivalent attitude. This hate is then directed toward the internalized object, the "bad father," and depression follows. Seeing Objects 2 and 1 as representations of this "bad father," she can naturally say of them, "These two look hideous to me." Object 1 is "just frightening" and gives her "the shivers." Object 2 is "ugly," "grotesque," and "something that's frightening."

Orality and cannibalistic fantasies toward these rejected objects are seen in projected form. She sees in Object 2, "something that would devour you," and of both objects she gives further evidence of orality in the comment, "I can't put it into words."

The subject sees herself in Object 3 as "a little child. Just a little child that you love . . . small thing that you can caress. . . . Something small that I can adore. Like a child that I can have authority over. That I can take care of—or possess it." This identification is suggested by the fact that she perceives it, second in her sequence, as an accepted object. She verbalizes this acceptance in her statements, "I like it," and "I like small things." She accepts the security engendered by childish obedience. She is willing to be possessed, to be subject to parental authority—in exchange for love and protection. In such a situation, she remains well. When support is withdrawn she becomes depressed and regresses to the late oral phase with its ambivalent techniques.

As the betrayed child, she finds support, from the loving mother. Two of the objects are mother-representations (6 and 5) and these occupy first and third positions in her sequence. Object 6 gives her a "sensuary feeling . . . an inner feeling of peace—of holiness." The "statue" representing "the idea of the Blessed Mother" provides solace for the patient in her state of "bereavement." The mother is also found in Object 5. In the tallest of the three projections of this object she sees, once more, the "Blessed Mother by a tree." Once again it is an accepted object; she says of it, "I like it." One of her references to the mother-figure, "She just isn't in color," suggests consciousness of herself as a Negro in relation to the white madonna.

She blocks strongly on Object 4 and, after a prolonged silence,

says, with intense feeling, "I don't think nothing about it." With this, she dismisses it. It seems reasonable to interpret her strong negative reaction to this object as evidence of her perception of it as part-object of the "father" toward whom her hate is directed. The expression of rage that she reveals as she considers it leads one to suspect the suppressed wish to castrate this unloving "father."

Here is a record, then, that demonstrates most of the important elements of the object-relations of the depressive state. There is evidence of orality with cannibalistic fantasies, regression to the dependent status of the late oral phase, and ambivalence toward the significant internalized object. The major psychopathological disaster, loss of the object, has occurred in her life, and her response is characteristic of her personality type according to the theory of object-relations.

CASE STUDY 3

Record of a Phobic Subject

Basic Theory. The transition stage of an individual's development begins to dawn only when the ambivalence of the later oral phase has already commenced to give way to an attitude based upon dichotomy of the object. *Dichotomy of the object* may be defined as a process whereby the original object, toward which both love and hate have come to be directed, is replaced by two objects—an *accepted object*, toward which love is directed, and a *rejected object*, toward which hate is directed. It should be added, however, that, in accordance with the developments which have occurred during the oral phases, both the accepted and the rejected objects tend to be treated largely as internalized.

Satisfactory development during the transition period depends upon the success which attends the process of differentiation of the object; and this, in turn, depends upon the issue of a conflict over separation from the object—a situation which is both desired and feared. The great conflict of the transition stage, therefore, is between the progressive urge to surrender the infantile object and a regressive urge to retain it. During this period, accordingly, behavior is characterized both by desperate endeavors to separate one's self from the object and desperate endeavors to achieve reunion with it. Although one of these attitudes may come to preponderate, there is, in the first instance, a constant oscillation

between them, because of the anxiety attending them. The anxiety attending separation manifests itself as a fear of isolation; and the anxiety attending identification, as a fear of being shut in. These anxieties, it will be noticed, are essentially phobic anxieties. This, then, constitutes the *phobic state*.

From the phobic point of view the conflict presents itself as one between flight from and return to the object. It thus becomes obvious that the phobic technic corresponds in the main to a passive attitude. For the phobic individual, the choice lies between escaping from the power of the object and submitting to it. The technic he uses is predominantly masochistic. Whether the flight is from or to the object, the object is now treated as external.

Since the interpretation of the following record involves the Oedipus situation, it is relevant here to discuss the Oedipus conflict briefly from the object-relations point of view. The deep significance of the Oedipus situation resides in the fact that it represents a differentiation of the single object of the ambivalent (later oral) phase into two objects, one being an accepted object, identified with one of the parents, and the other being a rejected object, identified with the remaining parent. Accordingly the guilt attached to the Oedipus situation is derived not so much from the fact that this situation is triangular as from the facts (1) that the incestuous wish represents a demand for parental love which does not seem to be bestowed freely, and (2) that there has arisen in the child a sense that his own love is rejected because it is bad.

Clinical Profile

The patient is a 50-year-old, married, white woman. During the past three years she has been afraid to leave her home without her husband. She has also been afraid to remain in the house alone; and she depends on her husband or her maid to avert this situation. She has expressed resentment and experienced panic at times when the maid was unable to come to work. In this agoraphobic setting there is marked anxiety with numerous psychosomatic symptoms. Having arrived at "the age where I'm falling apart," she begins to suffer from faintness, gastro-intestinal "spasms," palpitation and extrasystoles, and itching. In 30 years of a childless marriage her relations with her husband have been "good." Since the onset of her illness she has curtailed sex activity practically to the point of complete abstinence. With this self-imposed state of celibacy, there have been frequent extramarital sexual fantasies, accompanied at times by masturbation. A strong transference neurosis has been estab-

lished in the course of therapy with marked resistance against its analysis and resolution.

Test Performance

Behavior. She is very co-operative and wants to please the examiner. She handles the test objects freely, is able to designate her preferential sequence promptly, and performs well in a setting in which she has learned to feel fairly comfortable.

Preferential Sequence: 6-5-3-4-1-2.

She designates each object as "this" or "this one," except for Object 3, which she calls "this little fellow." Her preferences are: 6-5-3-4-1-2.

Value Judgment:

- 6: "I like its simple lines. It appealed to me for that reason. I think that's why I picked them in the order that I did. The least ornate ones appealed to me much more than the others. I think this one (1) and that one (5) are fairly ornate."
- 2: "This one I chose last because I've been trying to make out what it is. I haven't succeeded. I can't tell if it's a woman's body or what. So I left that for last, for that reason."
- 5: "I think it's sorta on the fancy side, if that's a good description."
- 6, 3 and 4: "I like the simple lines of these three better than I do the others. They appeal to my aesthetic tastes."
- 3: "It just appeals to me, that's all. It pleases my sight, I guess you'd say. It has a good sense of proportion."
- 4: "Well, I don't know. It's more or less a nonentity. It's nothing, really. It's just simple lines. I mean, as far as depicting anything I can't find that it does that. But the lines are simple and pleasing."
- 1: "I think the little animal, if that's a doggie or whatever it is, is very pleasing, is cute, but I think that the rest of it is very ornate."

Projective Images:

- 6: "This, I presume, is the figure of a lady."
- 3: "It's an animal of some kind, isn't it? Being fond of miniatures, naturally I like this."
- 4: "This I like for its simple lines, its plainness. Not ornate."
- 2: "This I haven't figured out. I don't know what that's supposed to be. Of course, if that was wood I'd say it's a real piece of carving. But I don't see any—I believe that looks like a woman's body, back here. I'm not sure but—could be."
- 1: "And this, as I said, is a little animal. I would say the same about this one as I did about that one [5]. Were it in wood, I could see where the work would be perfectly beautiful—the carving."
- 2: "And that looks like just an old tree stump."

Story Construction. "Mmm. It's quite a task. I can see the lady [6] taking the dog [1] for a walk, if that's a start. Here's the wood [2]. Well,

let me see—what could this represent? We'll say they come to a tree stump [4] and on the tree stump there's a little—that [3] couldn't be a chipmunk, could it? All right, we'll make him a chipmunk. Do you have to have an end to this story? I'm trying to think what I could use this [5] for. Well, I would say that the dog that the lady took for a walk in the woods broke away from his mistress and chased the little chipmunk off of the log up the trunk of an old tree [5]. [What led up to this scene?] Well, I would say it was time for the dog to be walked and the lady living in the country naturally took the dog out in the woods. And after the dog treed the little chipmunk, of course the lady would have to take the dog away and free him so he could come down out of the tree trunk. And that's the end of my story. It wasn't such a good one." *Recall*: 6-5—3-4—1-2.

Interpretation

Clinically there is ample evidence to indicate that this patient's phobic state, manifest principally in agoraphobia, reveals her need to separate from the object, as well as the separation-anxiety attendant on this task. Having reached middle age, and being conscious of this aging-process, she feels she must separate from her husband and seek love, in the form of sexual adventure, with another man. Harassed by super-ego function and frightened by the separation from her husband with which she is threatened if she satisfies her seductive wishes, she regresses to the technics of the transition period and develops agoraphobia accompanied by marked phobic anxiety.

The object-representations of the six test objects may be considered as follows: Object 6 is obviously a "mother" representation. The patient recognizes it as "the figure of a lady" and makes it one of the central characters of her story. Object 5 is also a "mother" symbol for her. The only thing she can see in it is "a woman's body, back here." Number 3 is a "child" representation. She calls it "this little fellow" and recognizes its smallness in saying, "Being fond of miniatures, naturally I like this." She makes it a "little chipmunk" in her story. Object 4 is not identified as an object-representation, except as a tree stump in the story. It is a "nonentity," has "simple lines," shows "plainness"—but engenders no projective images even in Part II of the test. There is some reason to suspect (see the following) that this has been perceived unconsciously as a phallic symbol, as part-object of the "father" representation. Object 1 is split into two object-representations; the taller projection being regarded as a child-symbol, a

"little animal, if that's a doggie," while the other part is "ornate." Simplicity is seen and preferred in Objects 6, 3 and 4 and represents the "dependency" or "child" figure, while the "ornate" is a quality that appears to represent the "adult" figure. Here, then, one finds in Object 1, the co-existence of the child and the parent representations. The subject has considerable difficulty with 2, in "trying to make out what this is." She says, "I can't tell if it's a woman's body or what." This is probably not a "mother" representation, but a displacement for the rejected "man's body" which she may have seen in it.

Her preferential sequence is characterized by a single major representation of each zone. Zone I, with Objects 6 and 5, indicates acceptance of the "mother" symbol as a source of support for her dependent needs; Zone II, with Objects 3 and 4, represents her own narcissistic identification with these "dependency" symbols; while Zone III, with Objects 1 and 2, represents the rejected "father" symbol. These representations are interpreted as the Oedipal triangle that is considered to be the core of this patient's phobic neurosis. It is interesting, when it is noted that she places Object 2 in sixth position, that she recalls her father as a kind, gentle and loving man. This position of least preferment, therefore, does not represent the rejection of an authoritarian father, but rather the denial of incestuous wishes toward the father. In a setting of middle-age consciousness, this wish is reactivated and warded off by the phobic technic of the transition period.

Object 4, already considered as a "dependency" object, is grouped with Object 3 in Zone II as a representation of the "child." If one divides the six objects of this preferential sequence into two groups, it will be seen that the first group of three (6, 5 and 3) may be regarded as "female" representations and the second group (4, 1 and 2) as "male" representations. It is for this reason that Object 4 may be considered a male part-object—a penis—and placed in the latter half of the sequence.

This subject prefers the "simple" objects and, in general, rejects the "ornate" ones. The concept of "simple" is taken to represent the dependent status of childhood and "ornate" the status of adulthood. While she says of 6, 3 and 4, "I like the simple lines of these three better than I do the others," she has not placed them in the sequence in that order. Object 5, although "ornate," is still her second choice. This, it is felt, can be explained by the fact that

its "mother" representation made it acceptable even though it contained an "adult" representation that the patient, in her ambivalent attitude over sex, is seeking to reject.

The use of the phobic technic is aptly illustrated in her story. She identifies with the dog (1) who is being taken for a walk by a "lady," the mother-representation (6). This symbolizes maternal care and protection. There is, naturally, a desire to break away from this, and it is represented in the story by the dog running away from the mistress to free the chipmunk. Through a second identification with the chipmunk (3) she experiences separation-anxiety which is relieved when the lady takes the dog once more into her custody.

The reactivation of the Oedipal situation, with its attendant incest guilt, is also suggested in a story which primarily conveys the idea of a mother and child relationship and is characterized by the conspicuous absence of a male or father figure.

One sees in this record evidence of the characteristic conflict of the transition stage, the progressive urge to surrender the infantile object and the regressive urge to maintain the infantile attitude. In her ordinary way of life, this patient is constantly trying to achieve reunion with external representations of internalized objects by adopting a pleasing attitude toward others, suppressing hostile feelings, presenting gifts, and so on. This need to achieve reunion with external objects is also seen in her test performance. She voices no strong objection to any of the test objects. Even Object 4, which she calls a "nonentity," still has lines that are "simple and pleasing"; Object 1, next to last in her sequence, is "very pleasing" and "cute"; and so on with the rest of the objects. Her urge to surrender the infantile object is seen in the placement of the "male" representations in the least preferred positions. But such a surrender leads to separation anxiety and, accordingly, shows itself in her phobic symptomatology.

The passive attitude of the phobic subject is apparent in this patient's behavior during the test performance. The masochism, seen in her clinical record, is shown in the test by her acceptance of Object 3, a "dependency" representation, with its implied need for acceding to parental domination, which she prefers to insecurity.

CASE STUDY 4

Record of a Paranoid Subject

Basic Theory. The paranoid state and the obsessional neurosis are not considered—in the object-relations theory—to be expressions of fixations at the earlier and later anal phases. On the contrary, they are to be regarded as states resulting from the employment of special defensive technics, developed during the transition period, and deriving their pattern from rejective, excretory processes. The paranoid and obsessional technics are not exclusively rejective, however. Both of them combine acceptance of the good object with rejection of the bad object. The paranoid technic represents a higher degree of rejection; for, in externalizing the rejected internal object, the paranoid person treats it as unre-servedly and actively bad—indeed as a persecutor. In addition to harboring persecutory beliefs, the paranoid individual often displays extravagant grandiosity. The paranoid state must, accordingly, be regarded as representing rejection of the externalized object and acceptance of the internalized object—or, alternatively, externalization of the rejected object and internalization of the accepted object.

Clinical Profile

The patient is a 39-year-old, married, white man who was admitted to Spring Grove State Hospital on March 24, 1956. He is a well-educated man, with a master's degree in Romance languages and some credit toward a doctorate. He has had eight years of experience in teaching. His psychosis is characterized by the persistent delusion that his wife put tincture of cantharides into his coffee for the express purpose of getting rid of him. She was assisted in this scheme by a number of collaborators. He further believes that patients at the state hospital are being subjected to the same sort of treatment for reasons that are vague to him. Other than this fixed delusional belief, there are no evidences of overt psychosis. There are no hallucinations and no signs of schizophrenic withdrawal. This patient's illness is considered to be an excellent example of a paranoid state.

Test Performance

Behavior. The patient is affable and very co-operative. He enters into the test situation willingly, verbalizes his thoughts freely, and handles the objects with ease. He volunteers value judgments and projective images while making his selections.

Preferential Sequence: 4-3—6-5—1-2.

- 4: "Well, I think this probably appealed to me first, and I like things on an ascending basis. Something about me that—well, I'd rather walk uphill than downhill. To me this almost represents a mountain peak. Well, it just makes me think of mountain climbing at this time."
- 3: "Well, I can't say very much about this piece except that to me it represents humility. Yes, humility—that's the one word that I can see and associate with that."
- 6: "Hmm—this possibly would be third. Now here I see love and affection—protection and prayer. Oh, perhaps a mother and a youngster, a babe in her arms possibly."
- 5: "Well, this may look a little difficult at first but, now as I handle it, perhaps children playing together, watched over by a parent, perhaps."
- 1: "Oh, this might be a couple of pets in the household, perhaps, frolicking about. That's all I get out of that."
- 2: "Well, the only thing that that gives me is something like perhaps somebody on the lookout, observing almost like from an observation tower or something of that sort."

Value Judgment:

- 4: "Well, I like the fact that this is ascending. However, I dislike the fact that it's ascending, shall I say, too—too much, in other words it's perhaps not gradual enough. And yet I don't know that that's such a criticism here, though. But let me put it this way, perhaps I like this approach [points to the side without the protuberance near the base] better than this one [with the protuberance]. But there again, that's not significant."
- 3: "In Object 3, which I saw humility in, perhaps made me think of someone—perhaps praying or—realizing the fact that there is a greater being—sorta like that—that man himself isn't supreme. I think that's what appealed to me about this object. And yet the thing that doesn't quite appeal is that it's—it's not complete. It's—well, it could have been a little more clear. But then again—clear to suit my interpretation, so that's not too strong a criticism, either."
- 6: "Now this, which to me demonstrates love and affection, perhaps prayer and a mother's holding an infant in arms. I think I can see this one perhaps more clearly than any and—yes, I like the symbolism expressed there. As far as dislike—I can't really—I guess if I were to find anything of dislike it would be this curvature here [at the base of the object] possibly, I don't exactly dislike it, I mean, I'm probably indifferent to it. But perhaps I would have liked this better had it not been there, this thing, possibly."

- 5: "I think in Object 5, if I remember correctly, I spoke of it as a parent watching over children playing together—which, of course, is always enjoyable. Now—I guess the thing that I don't particularly like, but there again to meet my interpretation—this being very subjective of course, if there had been a facial part to this image it would have suited me better, I guess, that's coming out towards wherever the supposed children are playing, but then again, my interpretation may not be the one expected here, I don't know."
- 1: "I believe I said amounted to perhaps a couple of household pets frolicking about. Now there again—here we have—the thing that I—well, I like the idea of pets frolicking about. I've had pets myself. But the thing that I don't like is that—it seems to be—just a little out of proportion because—live animals—it would seem to me that this should be—should be more face to face. But there again, that's my interpretation. I don't think that this is quite so likely though it's possible [refers to the part with the large imperfection]—I don't think it's quite so likely but I think it would have been more natural had this been faced to my left, in other words to the outside perhaps a bit more but that's perhaps very minor."
- 2: "Object 2, which I felt might be symbolic of a lookout or an observatory tower. Of course, based on past experience I can remember swimming out to a huge tower that looked very much like this. A case of apperception here, I guess. But—oh, possibly—this part here, the upper part, the exterior, perhaps doesn't quite fit in with the image that I have in my mind, but the rest of it is very close indeed. And, of course, the—as I—the thing I like about it is the height and well, the different things it represents to me. I guess that's about all."

Projective Images:

- 4: "Starting with this, my first impression was a mountain peak. However—oh, this could be an inverted vegetable such as a carrot. It could also—well, any vegetable of that type, or—mmm, possibly a probing instrument such as a file, although that's a little bit far-fetched here, but it's possible."
- 3: "Well, this could be a child. It could be a small animal.—That's about all I see there."
- 6: "Yes, the mother and the infant which I—said before, now I don't know—uh—could—well because of the robes, perhaps even a monk if I change the infant there, perhaps just holding something, perhaps an armful of books. It's a possibility, not likely."
- 5: "Object 5, which I felt might be a parent watching over children playing together. Well, it could also be a—represent perhaps the

animal kingdom with—birds being watched over by the mother. It's pretty much the same thought that I get."

- 1: "Here—which I felt were probably two household pets—playing together, frolicking about. I still get that very strongly, get that same impression. No, I don't get anything but small animals, perhaps dogs. I don't seem to get anything else from it."
- 2: "To me, because of apperception, represented a lookout tower. I mentioned the fact that I didn't dislike—rather disliked that part 'cause it spoiled it a little bit, but other than that it's pretty realistic. Now, what else could it be? I suppose—hmmm, because of this top part exterior here, it could even represent I suppose possibly—mm, a bird or a squirrel on top of a huge, tall tree. It's possible but that wasn't my first impression, but it's a possibility. And this could certainly be the trunk of a tree, I guess. Other than that I don't get anything particular."

Story Construction. "I set the stage first with the objects, is that correct? I'll try to use them all; that's more challenging. Oh, this isn't going to be hard, not for me. All right now, I've set the stage for two different scenes. This is going to be rather crude and rough. [Divides objects into two groups, one comprising 2, 4 and 3, and the other, 1, 5 and 6.] Now here I have the family household with the mother and child [6] and here perhaps the father looking on as the other children are playing [5] and here perhaps the household pets playing together, frolicking about [1]. Over here I have my lookout tower [2] and here is my mountain peak [4] and here is one member of the family who has lost his way [3]. But he's praying that he can find his way home before the approaching storm. The parents are a little uneasy; the mother has picked up the baby. The father is looking at the other children and starting to perhaps look at the clock, the time, looking out the window. It looks like a terrific storm coming up, and this youngster is still away from home. There is indecision as to what to do. The youngster is headed in the right direction and yet he's not sure. That's about all I have on that. [Events preceding and following?] All right. Yes, I believe I can. The whole family had been out together perhaps and oh, this youngster had asked permission to stay behind and play with some friends. Permission was granted. The other friends had departed and he started on his way home but—wasn't sure of his way. Perhaps going through a forest area. Now, as far as the outcome goes, the youngster keeps approaching; the father takes the other children with him. He feels it's not so distant and he's going to—he wants to start out alone but the other children ask to go along so, since there's no storm as yet, he's taking them along. He finds the youngster and they all go home."

Interpretation

The clinical impression of a paranoid state, primarily due to repressed homosexuality, is well confirmed in this patient's test performance.

Object 6 is clearly the "mother" and "child" representation, appearing as such in the preferential sequence, value judgment and projective image responses, and in the story. Love and affection are seen several times in this relationship. The subject also sees "protection and prayer" in the object; "protection" of the child by the mother, "prayer" as a worshipful gesture of the child for the mother.

Object 3 is perceived as a "child" representation—"this could be a child. It could be a small animal." In this "dependency" symbol is seen "humility" and prayer—"made me think of someone—perhaps praying." It is antithetical to adult authority, "realizing . . . that man himself isn't supreme." Yet the patient is troubled by the fact that this object "is not complete." In his story, it becomes a little boy "who has lost his way" and is threatened by an "approaching storm."

Object 4 is regarded as a "mountain peak," as an "ascending" object, a "carrot" and a "probing instrument." It is felt, however, that the thing it really represents to the patient is something he cannot speak of, a "penis" or "sexual object." He endows it with masculine virtues of strength: "I like things on an ascending basis." He associates, with this object, the thought, "I'd rather walk uphill than downhill." His percept of a "probing instrument" suggests its phallic nature. As a rejected object (see the following), he prefers the side without the protuberance (i.e. testes). And in the story, he groups it with Objects 2 (the "father") and 3 (his own self-image).

Object 2 is perceived as a large object, a "tower." The patient likes its "height." Its largeness is also perceived in his percept as "a huge, tall tree." Although it does not appear in the story as "father," there is reason to believe that it is a "father" representation.

Object 1 repeatedly appears as "household pets" playing with each other and seems to represent the security of the home, of which pets are normally a part. At no time is there any mention of the "black spot" and there is no reason, other than for its position in the sequence, to think that it has been regarded as a "bad"

object. It may have some "male" symbolism attached to it by virtue of its sequential position as well as the "male" representation of the dogs which he sees in it.

Number 5 is consistently regarded as "a parent watching over children playing together." The sex of this parent is undesignated until the story, when it becomes the "father." This is essentially a "good" object, inasmuch as the father is a good father, a protector of the helpless child, a benign figure watching over a group of children at play.

One of the striking aspects of this patient's object choice is the acceptance or rejection of objects according to size. The first three choices in his sequence (4, 3 and 6) are the three smaller objects, while his last three choices (5, 1 and 2) are the larger. His least preferred object (2) is the largest of all of the test objects. It seems that small is not only the "child" representation but the "female" representation as well—and, in the light of his repressed homosexuality, he would prefer these symbols of femininity. Rejecting the male parent, he naturally rejects the three larger objects, since they symbolize maleness to him.

Again, a most unusual choice is the selection of Objects 4 and 3 as the most preferred. In most records, these occupy Zone III, the zone of least preferment.

Recalling the clinical history, one must regard his delusion of being fed tincture of cantharides by his wife as an indication of this patient's own consciousness of lack of potency, for the legendary "Spanish fly" is supposed to be an aphrodisiac. His reaction to Object 4 most clearly indicates his feelings about this homosexual conflict. His high regard for it is obviously a reaction formation to his rejection of the organ it represents. Were his homosexuality overt, one might expect him to make this the last choice (as indeed it has been considered by several homosexual subjects not included in this study). Since he must convince himself that he is masculine, and since he must deny his repressed wish, he prefers this "ascendant" object. His rejection of it comes out in his dislike for the protuberance at the base, often perceived as a scrotum.

It is apparent that the patient's reaction to all the objects is one of ambivalence. He accepts none strongly, rejects none with great emotional feeling. He is able to verbalize his likes and dislikes about each one. Object 4, as mentioned, is liked for its "as-

ending" quality, and disliked for the protuberance at the base. Object 3, liked for its symbolism of "humility," is disliked for its incompleteness. Object 6, liked for its symbolism of love and affection, is disliked for the wideness of its base. Object 5, liked for its representation of a parent watching over the children, is disliked because of a lack of "a facial part to this image." Object 1, liked as "household pets frolicking about," is disliked because it is "a little out of proportion." Object 2, essentially disliked as a "look-out tower," is still liked for its height.

An interesting slip of the tongue is encountered in the subject's response to Object 2. "I mentioned the fact that I didn't dislike—rather disliked that part 'cause it spoiled it a little bit." Another evidence, of course, of an ambivalent reaction.

The patient's latent homosexuality, as evidenced by his response to Object 4, has been mentioned. This is further supported by his placement of the three "male" object-representations (5, 1 and 2) in the last three positions of his sequence. The largest one (Object 2) is most rejected. A "lookout tower," in the mind of a paranoid subject, would naturally be a hostile influence directed against him.

His own narcissistic identifications are apparent, not only in the choice of three small test objects as his most highly preferred ones, but also in the placing of Object 3 in second position. He sees it as a symbol of humility, and this appeals to him. More important than dependency symbols in these three small objects is their representation of the "female." Objects 3 and 6 have much in them that suggests the elements of femininity. In essence, then, his object-choices are divided into two main groups, the first group symbolizing the female principle, the second (and less preferred) group symbolizing the male principle.

While he is seeking protection, he has a strong need to reject the objects. The search for protection is seen in a number of ways in his test performance. Object 6 is a symbol of "protection." Object 5 contains a protecting parent watching over children. Object 3 is a "lost child" threatened by the elements, needing the protection of parents. The entire story he has constructed deals with the need of the protagonist (Object 3) for protection. Yet there is equal evidence of the patient's need to reject these objects. This, in terms of his dislikes, has already been discussed. It is felt that the subject is using the characteristic technic of the trans-

ition stage of paranoid rejection of the bad object and acceptance of the good object, with externalization of the former and internalization of the latter. He shows, however, a strong reaction-formation to the expression of hostility, qualifying most of his remarks with the words, "perhaps," "possibly" and so on.

The internalized good object appears as grandiosity, not particularly extravagant, but grandiosity nonetheless. The placement of the child or dependent figure above that of either parent figure is one indication of this. His extreme self-assurance in the story construction part of the test is another indication: "Oh, this isn't going to be hard, not for me."

The bad object, in the form of the father, is externalized and is indicated by the rejection of the three larger objects, as mentioned previously. Failure to identify with the male figure has set the groundwork for homosexuality. The precipitating factor of his illness was his wife's expectation that he would act like a male, which appears in his delusion of being fed tincture of cantharides. And his response to this expectation that he will enact the rejected-father role is a paranoid psychosis.

CASE STUDY 5

Record of an Obsessional Subject

Basic Theory. Because of the intimate connection existing between primary identification and oral incorporation, and consequently, between separation and excretory expulsion, the conflict of the transition period also presents itself as a conflict between an urge to expel contents and an urge to retain them. As in the case of separation and reunion, there tends to be a constant oscillation between expulsion and retention, although either of these impulses may become dominant. Both impulses are attended by anxiety—with expulsion attended by a fear of being emptied or drained, and retention, by a fear of bursting (often accompanied or replaced by a fear of some internal disease like cancer). Such anxieties are essentially obsessional anxieties; and it is the conflict between an urge to expel the object as contents and an urge to retain the object as contents that underlies the obsessional state.

Thus, the basic conflict, from the obsessional point of view, is between expulsion and retention of the object; its technic corresponds in the main to an active attitude. The obsessional technic expresses a high degree of overt aggression toward the object;

for, whether it is expelled or retained, it is being subjected to forcible control; it is predominantly sadistic in nature.

In the obsessional state, both the accepted and rejected objects are treated as internal. The obsessional state differs from the paranoid, in that, in the latter, there is a higher degree of rejection of the object; the paranoid person actually externalizes the rejected internal object. There is more of an attitude of compromise, in the obsessional state, between the predominantly taking attitude of infantile dependence and the predominantly giving attitude of mature dependence. Such an attitude of compromise is completely alien to the paranoid individual—for whom the excretory acts represent nothing but rejection.

Clinical Profile

A 49-year-old patient is an obsessive-compulsive individual with the following history. During adolescence he had a period of turmoil. In 1939, in a setting of excessive drinking, he became hallucinated and had marked paranoid ideas, directed mainly toward the government. This psychosis, oddly enough, did not interfere with his vocational activities. He worked as a salesman and managed to stay out of a mental hospital, although his illness continued without remission until 1955. At this time, the hallucinations and paranoid ideas disappeared, and were replaced by a number of obsessive and compulsive symptoms. When driving on the open road, the patient feels the compulsion to drive his car headlong, at full speed, into oncoming vehicles. He has felt, at times, the compulsion to harm his wife. He goes through a number of obsessive-compulsive rituals every day. A schizoid personality, he is apparently able to ward off the more serious manifestations of schizophrenia by using the obsessional technic of the transition period.

Test Performance

Behavior. The patient co-operates well. He has been in therapy with the examiner and has learned to be comfortable in his presence. He handles the test object only in a limited way.

Preferential Sequence: 1-5-6-3-2-4.

Value Judgment:

- 2 and 4: "I liked these two least because they look less finished. They look just more crude and don't have the detail that the others seem to have."
- 1: "I don't know. It looks to me like a couple of dogs at play. I don't have any particular like or dislike about any of them, except as I say, those two [2 and 4] look more crude than the others."

- 6: "It reminds me of a mother holding a child. [How do you feel about it?] I feel all right. It looks like art—almost religious."
- 5: "It looks like some hobgoblin figures. That's all it looks like to me. I don't have any—I think this is the most graceful of the lot [points to 6]. I like that for its grace."
- 3: "That looks like a figure too. Looks like it could be Toltec or Aztec Indian work. Detail's pretty good on it. In other words, the better the detail, the better I like them. When they're more just blobs, they're more obscure—I don't like them so much."
- 4: "I don't get anything out of this. Maybe it's the other side. More like a horn that way."

Projective Images:

- 1: "It just looks like dogs to me. I don't see more than one thing in these."
- 2: "This I don't see anything in this except that right here it looks like somebody's stomach with a navel—like a navel showing in somebody's stomach—a woman's stomach. Those are dogs [1]; that's some kind of an idol or image [3]; that's a woman with child [6]; those are elves or hobgoblins of some kind [5]—not frightening at all. I don't see anything threatening in any of them. This [2] is a little threatening in the way that it raises up and towers toward you."
- 4: "This I don't get anything from except it looks like a horn this way."
- 2: "I'd like to make something out of this one besides the fact that it's vaguely threatening. But it's so big and overhanging. I'd like to find something to compare it to—but I can't offhand. It doesn't remind me of anything."

Story Construction. [Rejects Objects 4 and 3.] This could be a nativity scene with this large one [2] a tree and those others are a couple of elves playing around [5] and a couple of dogs playing [1]. [The events preceding and following this scene?] It just reminds me of the birth of Christ—the Nativity, that's all—or a Madonna in church. [Anything else you'd like to add to the story?] No, I seem to lack imagination somehow or other."

Interpretation

This schizoid individual has managed, over the past two years, to ward off schizophrenic symptoms that have existed for years, by the use of the obsessional technic. To understand best how he has used this technic, explanation of the personality of his parents is in order. His mother was a rigidly neurotic conformist of traditional New England extraction. In order to gain and keep her love, the patient had to be a "good boy." Any aggressive behavior on his part would cause her great anguish, so he had to

suppress his self-assertive drives. He always felt safest, furthest from harm in a threatening world, in his own bed. His father was an outgoing, aggressive man of Irish extraction, with a temperament matching the popularly-conceived idea of the Irish. The patient could not identify with this paternal pattern and still come up to maternal expectations.

Object 6 is a dual representation to this man, symbolizing both "mother" and "child." This symbolism is expressed in his value judgments and projective images, and it appears still again in the Nativity scene of his story. Its feminine quality comes out once more when the patient interrupts his value judgment on Object 5 to say of Object 6, "I think this is the most graceful of the lot. I like that for its grace."

Object 4 is a "sexual object." Even though the patient failed to verbalize it as such during the test, he stated after it was over, "I suppose this was meant to look like a penis." He also linked it with Object 2 as "more crude than the others." This is taken to mean that he perceived these two as object (2) and part-object (4) of the "father" representation.

Object 2 is doubtless the "father" for additional reasons. Not only is it "crude" (in contrast to the "grace" of the "mother" representation), but it is also "big and overhanging." He perceived it as "threatening in the way it raises up towers toward you," probably the way his own aggressive father appeared to him in early life. It is difficult to interpret his perception in this object of "a navel showing in somebody's stomach—a woman's stomach." This might symbolize either the "authority" representation of the mother, the union of mother and father which represented the central problem of his own Oedipal conflict, or a rebirth fantasy relating to his own attachment to the protecting object through the umbilical cord.

Object 3 appears to represent the opposite of Objects 2 and 4. The latter, which symbolize the "father," "don't have the detail that the others seem to have." Object 3, in particular, possesses the quality of detail. "Looks like it could be Toltec or Aztec Indian work. Detail's pretty good on it. In other words, the better the detail, the better I like them. When they're more just blobs, they're more obscure—I don't like them so much." "Just blobs" appears to be his idea of the threatening parent. The fusion of mother-and-child, perceived in Object 6 as an image engendering a feeling

of safety, seems to be the representation also found in Object 3.

Object 1 is perceived as "a couple of dogs at play" and Object 5 as "elves or hobgoblins of some kind." The elves of his story are also presented as playful: "a couple of elves playing around." These two objects are essentially nonhuman representations. They symbolize, however, a loving or playful relationship between or among the animal or subhuman figures they contain.

The patient accepts four objects and rejects two. Neither acceptance nor rejection is strong: "I don't have any particular like or dislike about any of them except, as I say, those two [2 and 4] look more crude than the others." He sees Object 2 as "threatening," that is, as a "bad" object, but comes back to it in an effort to make a "good" object out of it: "I'd like to make something out of this one besides the fact that it's vaguely threatening." He tries to "find something to compare it to," something good, of course, possibly even his own self-image; but he fails; so he must conclude, "It doesn't remind me of anything."

Two striking features of the preferential sequence are: (1) the presence of the two nonhuman playful figures in Zone I, and (2) the "father" and his sex organ in Zone III. The objects of Zone I are "good"; "those are elves or hobgoblins of some kind [5]—not frightening at all." As accepted objects, they naturally come first in the sequence. The objects of Zone III represent the threatening "father" and so, as rejected objects, come last in the sequence.

In the zone of indifference, Zone II, one finds Objects 6 and 3, both of which contain the fused image of "mother" and "child." In the patient's childhood, the task of "being a good boy" was most important. Indeed, he has spent his adulthood trying to meet the same expectations that were held for him in earlier life. Hence the good objects would come as his first choices. Similarly, he has devoted his life to the denial of overt aggressive behavior, and this shows itself in the sequential position of the objects symbolizing this denied affect. This process naturally leaves the mother and child in the middle.

This subject's story, such as it is, confirms the interpretations gained from a study of the rest of the record. It is a simple scene of mother and child with dogs and elves playing around.

The patient's total approach to the test appears to be in keeping with the performance one might expect of an obsessional character.

Filled with strong feelings of rejection of internalized bad objects, he must keep them internalized. He cannot express rage toward any of the cypress knees as external representations of these internalized objects (compare with the records of Subjects 2 and 7). Nor does he show any sense of strong appreciation of the qualities of his accepted objects; this, too, remains an internalized performance. In general he shows a colorless sort of response to the cypress knees—the restraint of the obsessional in relation to external objects.

CASE STUDY 6

Record of a Hysterical Subject

Basic theory. In the hysterical state, the conflict appears to be formulated simply as one between acceptance and rejection of the object. Acceptance of the object is clearly manifested in the intense love-relationships which are so typical of the hysteric; but the very exaggeration of these emotional relationships raises a suspicion in itself that rejection is being overcompensated for. The suspicion is confirmed by the propensity of the hysteric to dissociative phenomena. That these dissociative phenomena represent a rejection of the genitals need not be stressed; but analysis can always unmask an identification of the rejected genitals with the breast—as the original libidinal object during the period of infantile dependence. This being so, it is noteworthy that what is characteristically dissociated by the hysteric is an organ or function in itself. This can have one meaning—that the rejected object is an internalized object with which there is a considerable measure of identification. On the other hand, the hysteric's overvaluation of his real objects leaves little room for doubt that, in his case, the accepted object is an externalized object. The hysterical state is thus seen to be characterized by acceptance of the externalized object and rejection of the internalized object—or, alternatively, by externalization of the accepted object and internalization of the rejected object.

Clinical Profile

The subject is a 19-year-old, married white girl. She has had two years at the State Teachers' College and is now a first grade teacher in elementary school. She was married just two months ago and is living with her husband's parents. She expects her husband's discharge from military service soon. Her father died when she was two years old. She

has had a "spasmodic stomach" for years. During her two years at college, there were episodes, generally preceding examinations, when she would become severely ill, with intense nausea as the predominating symptom. Ordinarily, she is a friendly sort of person, somewhat effusive in her emotional relations, apparently trying very hard to be pleasing and, therefore, accepted.

Test Performance

Behavior. This subject requested the test. She is eager to please the examiner. She handles the objects and apparently enjoys the test situation.

Preferential Sequence: 6-1-3-4-5-2.

"There are two that strike me. This one [6] reminds me of something very gentle. It seems feminine to me because it reminds me of a mother holding a baby in her arms, or something. Beautiful. I don't know, that's how it strikes me. This one [1] I enjoy looking at. I don't know—at first it reminded me of a cow with something like another type of animal at the bottom. But I don't really see too much of a story for this. But I could go on and on talk about the first one I mentioned [6] for a great length of time."

Value Judgment:

- 6: "There's something about this, as I said, that—I can't think of a word right now, but anyway it seems very soft and protective and just beautiful—it's just beautiful—it reminds me almost of a Mona Lisa or something very, very gentle. I like it. And it just seems to me of a mother being extremely, extremely protective. It might be a father but I doubt it because it just seems to have the grace. That's it—it's just graceful—the grace of a mother, I think."
- 1: "And I think this one is—I don't know, it's almost funny or—I can't really decide. It seems like maybe two silly cows at a bullfight or something like that—but something cute—something light. It definitely isn't anything too serious. The black here is striking. Here it—I don't know—it's a matter of curiosity—it is a curious—I wonder what it's for. I don't have any ideas. Just reminds me of a hat or something but it just seems very cute and light."
- 3: "And this one—it's hard to say what it reminds me of, but it just fascinates me in its own little way. Definitely little. And I could turn it around and around. I see one way of looking at it—it reminds me of something human or superhuman—not a ghost but something like that. A character of some kind."
- 4: "And this one seems to be—looks like a blob almost—but somehow or other I would like this if I ever decorated a home or something. I'd like this to be here because even though it's something very simple I wouldn't get tired of it. It actually doesn't seem to relate

anything to me. Something very stable and just maybe because the broad base of it. Very stable.

- 5: "I don't—huh, I don't know—it's novel, I think. When you look at it this way it looks like the wind—the face of one of the winds, the face of the north wind or something—and—sometimes I become so engrossed—I don't know really what—what this could be. It doesn't tell me anything. I like the lines in this. I think the lines down here are very pretty. It doesn't tell me anything."
- 2: "And this to me—this last one, is structurally magnificent, I mean—in comparison to the others. I think that—it just seems to be very stalwart. It's just magnificent I think or outstanding because it looks so very strong and tall."

[Anything you dislike in any of these?]

- 1: "Well, I wouldn't have thought so normally but—let's see—this hole in the cow or whatever it is, in his face [points to small imperfection]. It bothers me. I feel like I don't want it to be there. Now this spot [points to large imperfection]. Now that I think is cute. I thought that was a cap to make him look more novel. But this looks like somebody had hurt him or something. At first I thought it was a nose, but actually it looks like somebody had hurt him and some way I don't like it—but I think that's the only thing that I don't like."

Projective Images:

- 6: "Well, as far as I say, this one is just—it's a picture, something of beauty and to me it could be nothing else. There seems to swell down at the base—like a fish tail or a mermaid, but that really doesn't mean too much. It's just beautiful in itself."
- 1: "This one is—this is so cute—it's funny. Now it reminds you of a puppy dog standing up, and maybe another dog looking at him, or dogs showing off. It looks like his paws are sort of groping and flying, or something. It's some kind of animal. To me I don't think I could ever see a human image—a bear I could make out of it—but I couldn't see a human image in this."
- 2: "And this one doesn't—possibly because I've seen pieces of this in someone's home or something—It—I don't think it's an image at all—only a piece of strong—I know that it isn't solid but it just seems very strong—a strong piece of wood."
- 4: "And this one seems to be—I just like it—I just like it to sit on—Very firmly and—"
- 3: "That one's cute. It's just very cute. It reminds me of, I don't know, something that's very cute that might have been put in wax."
- 5: "And the last one. I can't seem to make anything out of it. All I—I know there must be something to this, there just must be, as I say,

this to me is just a picture of the old north wind because everything seems to be blowing, like swirling in a way. And—hmm, he seems to be on a long thin pole but he's very funny. I don't know what these things could be. It looks like, you know, when I look at it now, it looks like somebody down here is grouchy. And this is a mean eye or something. It has a very sneering face but he looks like sort of a nice guy, you know, the kind of a guy that is very firm with a loud voice but has a good heart. That's how it strikes me."

Story Construction. "Well, this will be my main character [6], and it's going to be a protective story, I think. And he is going to be the protector [5]—the north wind, that's what he reminds me of. This one doesn't seem to be a part of the story because it's so funny. [Eliminates Object 1.] And I like this one in the background [2], just like that—because it seems to be a pillar—just like a pillar of some kind; and this little thing [4] is going to stand in front of her in its own simple and plain way. It seems to be very strong. I mean, it's very plain and it looks—it might be the type of person or something who appears to be just very plain and people think of him as very nothing but inside he's very deep. And I think he will protect her toward the end—tremendous loyalty here. And this person [3] I know—I don't know how much he belongs but he should be here for some reason. I think he should be down here [farther removed from 6 than the others], because he's definitely not going to protect her and he's not a child or anything, but I just feel as though he's there, just there for some reason, but I want him there. And then the one I don't feel belongs at all is that one [1] because I see something completely different.

"Well, to me—I don't know how much of a story there is only that a great deal of this is in the outdoors. And this might be a mountain, some kind of a pillar of strength and this mother is alone with her baby. And these two [5 and 4] are, well, protecting her from something, it's definitely something. I don't know what it is—but they're not just there—they're protecting her from something. He is almost more important [5] than this one [4], is, because he is very—well, he has a good heart and all of that, but this one [4] is more knowing in its own way than that one is. This one [4] has to be in front of her; that one [5] stands alongside of her for moral support, but this is the one that's going to take the brunt of everything and I just think that it's a deeper, stronger, more feeling person—funny that I call it a person.

[What is the threatening situation?]

"I don't know. I just don't know but there's something—and he's protecting her in his quiet way he's protecting her—not from anything severe or murderous, nothing like that, but from being hurt in some way—but

I don't know how—but just he's protecting her. And he's just a good guy, a good Joe—very sweet and with a good heart, great personality and sorta strong. Reminds me of someone in real life. It's terrible—I'm relating it to myself. I can feel it coming to real life so much. This is my father-in-law [5], he's coming to remind me. And this [4] is my husband [4], I think. I don't know what this is except possibly my family [2], my mother and my sisters. And down here, I don't know, maybe my nephews somewhere [3] because they're very important to me, but they remind me of someone very soft and little and they would need help more than being able to help. But he is most important [4]—he's always there in his own quiet way and he's protecting me—I don't know."

Interpretation

This record of a subject with a history of episodes of hysteria is an example of a "blind analysis" of a record. This young woman, recently married to the son of a friend of the writer, had learned about the new test and volunteered as a "normal" subject. Her record fitted in well with the demands of basic theory for the hysterical personality. When she was questioned (and this occurred after the test was complete and analyzed), she gave the history of frequent attacks of gastro-intestinal "spasm" and episodes of severe nausea preceding examinations at college. These periods of illness were usually initiated by situations in which she feared rejection.

The object-representations of the stimulus objects are clear enough. Object 6 is the "mother" representation: "it just seems to me of a mother being extremely, extremely protective." She briefly considers it as a "father" but discards the thought "because it just seems to have the grace" of a mother.

Object 4 is unquestionably phallic, an obvious "sexual object." In her story she personifies it as her newly-wedded husband. And in her projective images she makes a statement about it that is highly suggestive: "And this one seems to be—I just like it—I just like to sit on—very firmly and—."

Object 1 is a "bad" object. While she cannot reject this, or, for that matter, any object, and while she finds much in it that she likes, she reveals her perception of it as a "bad" object in several ways. When making her value judgments, she notices the large imperfection in it. She says "The black here is striking." This stirs an emotional response, for this statement is followed by some disconnected talk: "Here it—I don't know—it's a matter of curios-

ity—it is a curious—I wonder what it's for." Again, when asked if there are any objects she dislikes, she speaks of the small imperfection in this object as an undesirable element. "This hole in the cow or whatever it is, in his [sic] face. It bothers me. I feel like I don't want it to be there." She adds, "But this looks like somebody had hurt him or something. At first I thought it was a nose, but actually it looks like somebody had hurt him and some way I don't like it."

Object 3 is a "child" or "dependency" object. She says, "it just fascinates me in its own little way. Definitely little." In her story she personifies it by actually saying, "And this person," refers to it as a "he," and finally regards it as "maybe my nephews." It still remains a "dependency" object because "they remind me of someone very soft and little and they would need help more than being able to help."

Object 2 is a "father" representation. It is "structurally magnificent," "stalwart" and "strong and tall." Later she says, "I don't think it's an image at all," and in her story regards it as "possibly my family, my mother and sisters." If one recalls that this subject lost her father when she was two years old, it will become apparent why this strong and tall object at first contains no image, and later appears to be her family, "my mother and sisters."

Object 5 confuses her because of its nonhuman representation. She finally gets comfortable with it and sees it as a source of protection when she identifies it with her father-in-law. Until this happens, however, she says, "I don't really know what—what this could be." Also, "It doesn't tell me anything," and "I can't seem to make anything out of it." She feels strongly that there is an element of movement and so refers to it as the "north wind." Later on, she sees a "grouchy" man with a "mean eye" and "a very sneering face" but is still impelled to make him a "nice guy," "the kind of a guy that is very firm with a loud voice but has a good heart."

The most characteristic element of this girl's object-choice, is her intense acceptance of all of her objects. Number 6 is "just beautiful—It's just beautiful—it reminds me almost of a Mona Lisa or something very, very gentle." It is, again, "something of beauty and to me it could be nothing else." Her strong acceptance of Object 3 is verbalized as follows: "That one's cute. It's just

very cute. It reminds me of, I don't know, something that's very cute that might have been put in wax."

Her responses to the other four objects show strong acceptance but differ from her unreserved liking of Objects 6 and 3 (the "mother" and "child") in containing elements of rejection. Object 1 "is so cute—it's funny." Yet she shows an emotional reaction to both of the imperfections it contains. She finally manages to find some reason for liking the large imperfection. Her disconnected talk, when first confronted with it, has already been mentioned. But she perceives it, after some reflection, as a "hat." She says, "Now that I think, it's cute. I thought that was a cap to make him look more novel." She never gets around to accept the small imperfection since she feels that this represents an injury: "this looks like somebody had hurt him."

While Object 4 is initially perceived as a "blob," indicating no great acceptance, she goes on to verbalize her liking for it. "I would like this if I ever decorated my home," and "It's something very simple I wouldn't get tired of it." She regards it as "something very stable" and feels that it symbolizes security to her.

Her rejection of Object 5 is seen in her percept of a "grouchy" man with a "mean eye" and a "very sneering face." Yet she must like this man in order to achieve the inordinate amount of protection for which she craves. So he becomes "a sort of a nice guy . . . very firm with a loud voice but . . . a good heart." And, in her story, he is a highly accepted male protector in the person of her father-in-law.

Object 2, her last choice in the sequence, is "a strong piece of wood." It is "structurally magnificent" and "very stalwart." Even this object of least preferment is endowed with highly accepted attributes.

Three features of her preferential sequence stand out. First, is her choice of Object 6 as the most preferred one. To an individual who lost her father when she was two, her mother is a very protecting figure and is, for this reason, preferred over the other objects. The placing of Object 3 in third position appears to indicate her identification with it as a helpless creature but a worthy one. And her placing of Object 2 in the last position would suggest, in a subject who needs male protection as much as she does, that her father's death was regarded as a desertion. This, of course,

made him an unreliable object and, hence, he is relegated to the position of least preferment in the sequence.

One is now in a position to see the dynamics of this subject's object-relations. The death of her father appears to have influenced her personality profoundly. While expressing dependence on the mother, she is essentially searching for father's protection. Even though Object 6 is beautiful, hence dependable, she still has to see in Object 1 "two silly cows at a bullfight." This naturally suggests greater esteem for the male as a protector. Her story actually reveals the essence of her neurosis. She must internalize the "bad" object which she does by eliminating Object 1 from the story. This is in keeping with the inability of the hysteric to externalize bad objects. Identifying with the mother, the girl assumes the role of the protected female (Object 6) and surrounds herself with a group of males. Her husband (4) would naturally be equated to the phallic symbol; and he, above all of the others, is most protective. He "has to be in front of her" because he is "the one that's going to take the brunt of everything." Another male protector, her father-in-law, is personified by Object 5. Her marriage has provided her with two "fathers," her quiet, "simple," serious husband and her more jovial father-in-law. Her real father (Object 2) is in the background, "a pillar of some kind," but not actively protective. And her little nephews, symbolized by Object 3, are there as protecting males even though "they would need help more than being able to help."

This completes the picture. As an effusive, loving woman who is capable of intense love-relationships in her everyday life, she displays a similarly intense attachment to the stimulus objects. This, obviously, is the externalization of the "good" object. Similarly, in keeping with the demands of basic theory, she must internalize the "bad" object. Her reaction toward Object 1 and her avoidance of dislike toward the other objects is consistent with this aspect of the hysteric's behavior. And all of this she needs, because she has never resolved the threat to her security that took place when her father died. Given a considerable amount of male affection and approval, such as she now enjoys, this subject should make an excellent emotional adjustment, which—in fact—she is making. One suspects that there might be a recurrence of symptoms similar to those she experienced at college if she ever felt rejected or unloved by these important men of her life.

CASE STUDY 7

Record of a Delinquent Subject

Basic Theory. In the delinquent child, and later in the delinquent adult or psychopathic personality, one observes the operation of another defensive technic of the transition period, the moral defense. The bad object is internalized and repressed. The delinquent individual, while reluctant to admit that his parents are bad objects, does not display equal reluctance to admit that he himself is bad. It becomes obvious, therefore, that he would rather be bad himself than to have bad objects. One of his motives in becoming bad is to make his objects "good." In becoming bad, he is really taking upon himself the burden of badness which appears to be in his objects. By this means, he seeks to purge them of their badness; and, in proportion as he succeeds in doing so, he is rewarded by that sense of security which an environment of good objects so characteristically confers.

What applies to the delinquent child and adult may also apply to other individuals, since it is impossible for anyone to pass through childhood without having bad objects which are internalized and repressed. Whether any given individual becomes delinquent, psychoneurotic, psychotic or simply "normal," would appear to depend in the main upon the operation of three factors: (1) the extent to which bad objects have been installed in the unconscious and the degree of badness by which they are characterized, (2) the extent to which the ego is identified with internalized bad objects, and (3) the nature and strength of the defenses which protect the ego from these objects.

Clinical Profile

At the age of 14, this patient was brought for psychiatric treatment because she had difficulty in finding acceptance by the other girls at school. It was soon learned that the reason for this was her reputation as a "fast" girl. She has now been in analytic therapy for about three years and has been treated by three psychoanalysts. Once, during this period, she had what some observers considered to be a psychotic reaction, and others thought to be the acting out of her hostility. She likes to assume a sophisticated role, expressing interest in Existentialism and other philosophic doctrines, about which she has some superficial knowledge. She prides herself on her rebellious spirit and is a militant foe of conformity.

Test Performance

Behavior. The patient heard the writer discuss this test with her mother, a social acquaintance, and requested that he give it to her. During the examination she was "on guard," taking a long time to make decisions, expressing herself carefully and slowly. She displayed marked rage in her reaction to Objects 6 and 4 and made an abortive effort to destroy these objects.

Preferential Sequence (time given in seconds): 1-2-3-5-6-4.

11": "[Sees examiner writing.] No, I didn't pick it yet."

69": "This one [1]."

105": "This one baffles me. [2]."

110": "All right, I'll take this one [2]."

127": [Points to 3 as her next choice.]

158": "This one [5]."

162": "I can't make up my mind which I hate the most."

174": "All right, this one can be it [6]."

Value Judgment:

- 1: "It's artistic. To me it's less symbolic than the others. It's more isolated than the others—owing to division. There's something about it I can't pinpoint. It almost looks like a person worshipping something or someone—this being symbolic of a head—eyes—and I can't differentiate this—an animal or human. That's all."
- 2: "Oh—huh—Why I chose this I'll never know. Reminds me of a cross-section of something. Looks like an internal organism of one sort or another. And it really isn't. Can't see much else to it other than I liked it."
- 3: "It's small. I like it because it's small. There's the head, an eye—looks like Dadaism. This one I do like."
- 5: "This seems to be a bit more compounded. It's not quite as isolated as Number 1. It's a little tricky. I'm looking for something in it. I want to see if there is something human. I don't like it too much. It was choosing the lesser of three evils—just which one I didn't like the most."
- 6: "I don't like it. I don't like it one bit. [Facial expression shows rage. She squeezes the test object and seems tempted to destroy it.]"
- 4: "And this one? I don't like it either. These two I really don't like. I have a desire to destroy them both."

Projective Images:

- 1: "I told you I saw a human head, and eye. Nose. It's the head of a —the other part seems to be that of an animal. In complete appearance, it looks more like a bear with distorted arms. This part is another animal. That's all."
- 2: "Reminds me of an enlarged vein. This is a kidney. I saw something

that looked like—I can't find it. High on top there's a little head. One eye and a nose. No mouth."

3: "It looks like a little lost child. Just 'cause it's so little—lonesome."

5: "There's a head with an upturned nose, two eyes and a distorted hair-do. And here's another head. This is a dog—a bunny rabbit. It's a grimace—not very pleasant looking. That's all."

6: "[Long block.] A man and a woman. That's all."

4: "[Long block again.] It's a phallic symbol."

Story Construction. "[Eliminates 2, 6, 4 and 5 in that order. Keeps 1 and 3, which she places at diagonally extreme ends of the table.] Now to make up a story about them. This, as I said before, is a lonely child [3]—but this is a—I believe I once said this was something to be worshipped. I'm beginning to wonder if it shouldn't be destroyed. It's such an expression of plight on this face. In a sense I think they should all be destroyed. A lonely child can't exist. I don't think anyone should be worshipped. This person could exist [points to the large imperfection]—if it could only be more isolated and separated from this entire object.

"[Would you like to isolate it for the purpose of the story?] As long as it's attached to this other thing, I can't be isolated. It should be isolated. It's its only chance for survival. Perhaps if it were isolated—perhaps these two might meet before it was too late—but I don't know. They're pretty far away. I'm beginning to dislike this thing. I don't like any of them. They can stay together but it will be no good. I don't think there's much of a story to it. [After a long pause, she is asked: Do you want it to end here?] Might as well. It would end anyway."

Interpretation

This record is an excellent illustration of the dynamics of a delinquent female subject. In it one sees evidence of the operation and breakdown of the moral defense. The bad object is, in this case, two bad objects, mother and father. Originally reluctant to admit that they were bad, the subject had to become bad in order to make them "good." This technic, however, proved a tragic failure and she was left not only with bad internalized objects but also with the burden of her own badness.

The object-representations seem clear enough. Object 6, as usual, is "mother." The subject is able to see "a woman" in it. But the "father" image is also contained in this object, for the complete image is "a man and a woman." There is no mystery, either, about the significance of Object 4. She recognizes it promptly as a "phallic symbol." Object 3, similarly, is clearly perceived; she calls it a "little lost child," indicating her perception

of it as a "child" or "dependency" representation. There is reason to believe that she recognizes Object 2 as a "father" symbol. She verbalizes her perception of its largeness in the "enlarged vein" and again by the statement "high on top." Object 5 is obscure to her. She perceives it as a "nonhuman" representation in saying, "I'm looking for something in it. I want to see if there is something human." Object 1, preferred above the rest, is essentially two objects, "owing to division." Her story reveals her preference for the half of Object 1 bearing the large imperfection, and this, it appears, has been perceived by her as a "bad object" with which she strongly identifies. It is, unfortunately for her, attached to the "bear with distorted arms." This bear, it seems, is a "father" representation.

At first, she accepts Objects 1, 2 and 3 while exhibiting ambivalence toward 5 and strongly rejecting 6 and 4. Later, she rejects 2 and half of 1, leaving for herself as accepted objects the half of 1 bearing the large imperfection and the "lonely child" (3). Finally, as she progresses with her story, she rejects everything saying, "In a sense I think they should all be destroyed."

In her preferential sequence she places Objects 6 and 4 in Zone III. Toward both of these she acts out intense hostility; indeed it appears at one moment that she may actually carry out her impulse to destroy these two test objects. This strongly suggests an unresolved Oedipal situation; mother and father are seen, presumably, in an intimate embrace in Object 6; the penis of the rejecting father is in Object 4.

The yearning for the "good" father is apparent. Object 2 occupies second position in her sequence. It is a human representation having "a little head. One eye and a nose. No mouth." But it is accepted. "Can't see much else to it other than I like it." Father appears again as part of Object 1. He is the "bear with distorted arms." The remaining half is an object-representation of the patient herself. She finds her projected self "more isolated ... owing to division." She sees herself worshipping the father: "It almost looks like a person worshipping something or someone." In describing her projective images of this self-symbol she states: "It's the head of a ..." and then breaks off to describe the other half of the object. It seems fairly evident that this patient sees herself as something "bad" in this object, since only the imperfection part appears to pertain to her.

Another narcissistic representation is found in her perception of Object 3 as a "child." She says of it, "It's small. I like it because it's small." As a rebel, an attitude on which she prides herself, she relates this object to a nonconforming school of art: "looks like Dadaism." Then her full approval in, "This one I do like." She views it further as a "a little lost child. Just 'cause it's so little—lonesome."

It is not strange then, that she chooses Objects 3 and 1 for her story. Feeling hostility toward mother and father in an unresolved Oedipal situation, she uses two characters that indicate narcissistic self-representation. The "good" self is Object 3, the "lonely child"; while the "bad" self is the blackened part of Object 1. They are placed as far apart as possible on the table. The "father," considered an object deserving of worship earlier in the test, is now regarded as a rejecting figure: "I believe I once said this was something to be worshiped. I'm beginning to wonder if it shouldn't be destroyed." Without a father she can see no future: "A lonely child can't exist." She has made the "bad father" into a "good father" but still feels she has not gained his affection. She says, therefore, "I don't think anyone should be worshiped." The "bad child" "could exist—if it could only be more isolated and separated from this entire object." She denies the possibility of any separation: "As long as it's attached to this other thing [the "father"], I [sic] can't be isolated." The use of the personal pronoun at this point is revealing. If the "bad" object "were isolated—perhaps these two [the "good" self and the "bad" self] might meet before it's too late." Thus the split ego might be united. She ends her story on a note of pessimism and futility.

It is interesting to compare this attitude toward the father with her behavior as elicited in the clinical history. The patient is a seductress and, in her illness, has been searching for the father. Her inability to accept her victim, and the contempt she bears for him, is a reliving of her feeling toward the Oedipal father and her need to punish him. Once, in her "psychotic" episode, she expressed the idea that her father was dead, even as he was talking to her, attempting to convince her that he was alive.

Object 5 does not figure prominently with her. It is "tricky," nonhuman and difficult to understand. She distrusts it, as she distrusts all objects other than herself; and so she decides, "I don't like it too much."

Zone I, then, contains two "father" representations, signifying the subject's search for the male parent. It also contains her own self-image as a "bad" object, required, as has been said, in order to make the bad internalized objects "good." Zone III indicates her failures to do so; and, for this reason, she places the still "bad mother and father" seen in 6 and the "bad" (incest temptation) "phallic symbol" seen in Object 4 in a situation of least preference. Zone II, the middle zone, contains the "good" "lonely child" (3) and the "tricky" "nonhuman" representation, Object 5.

There is nothing for her to do, in her neurosis, but compulsively and repeatedly seek out the father in the guise of love and then destroy him. This she does, of course, in her pattern of delinquent sexual behavior.

CASE STUDY 8

Record of a Senile Subject

Basic Theory. Damage to the brain results in a state of confusion in which the perception of objects becomes unclear. Characteristically, recent recall is more impaired than remote recall. This serves to illustrate the point that external objects are perceived with more difficulty than internalized ones. The paranoid senile patient, for example, may display disorientation and confusion in general and still utilize the paranoid technic of the transition period, since, in this instance, he is dealing with internalized objects. Extensive brain damage naturally results in the loss of perception of all objects, internal as well as external, and then the individual is reduced to existence at a vegetative level. Where, however, some limited perception exists, stereotypy is common; and the less familiar object is invested with the attributes of the well-recognized one.

Clinical Profile

The patient is a 65-year-old, married white man who shows definite clinical evidence of organic brain disease. For a year and a half there have been signs of increasing memory deficit and general confusion. Upon leaving his home unescorted, he has become lost a number of times. During the interview, marked clinical evidence of an organic psychosis is apparent. He is disoriented, giving the date as July, 1896. He is unable to remember what he had to eat for his last meal and cannot recall a friend's visit just one day before the interview. He cannot name the governor of his state or even the president of the United States. Strangely enough, he continued with his work as a money-counter at the race track until only

a few weeks before this examination. His response to serial sevens is as follows: 100-93-86-76-69-62-55-75-68.

Test Performance

Behavior. The patient is co-operative but confused. He handles the test objects freely. Whatever delays exist in his responses seem due to confusion rather than blocking.

Preferential Sequence: 6-3-5-1-4-2.

The patient handles each object individually. Then he says, "The only thing that I could make out would be mother and child here [6]. That might be an animal with a baby in a pouch [3]. That looks like an elephant's head [5]." He has failed to understand that his preferential sequence is requested, so the nature of his task has to be restated. He gives the following sequence, 6-3-5-1-2, and believes this is all, unaware that he has failed to place Number 4. Reminded of this, he places 4 next to the last.

Projective Images: With this subject's limited capacity for perception, it was felt that his projective images should be elicited first in the hope that this would enable him to perform maximally in stating his value judgments.

- 6: "That looks like a madonna. It would be mother and child. It isn't the exact replica but it's something like it."
- 5: "That would be more sort of the elephant, but these here [points to the other two projections], I can't place them at all."
- 3: "It looks like it may be a mother and child. What this offset is I don't know. No, it's more like an animal than human."
- 4: "I don't see anything in that one. I don't see any similarity at all."
- 1: "It looks more like a—the nearest I can get to any of them is this mother and child [6]. As for the rest, they're a bunch of rubber. That might be intended for one eye [points to the smaller imperfection]."
- 2: "It could be a child there and a parent. Could this be a child? No—No—I don't know. [Points again to 6.] This is the nearest to anything."

Recall: 6-5-3-4-1-2. (two inversions: 3 and 5; 1 and 4.)

Value Judgment:

- 6: "Reminds you of the madonna. Mother and child."
- 5: "The only similarity I could get out of it was an elephant's tusk."
- 4: "This is really a blank."
- 1: "This is more like a reptile or animal of some kind. Frankly, I don't like any as far as ornamental is concerned."
- 2: "There's more of it and less to it. Take this [6]—this could be the mother and the child."

3: "This could be the animal and the child."

Second Recall: 6-3-5-4-1-2. (one inversion from first recall, 5 and 3; one inversion from first sequence, 1 and 4.)

Interpretation

This record shows organic involvement in a number of ways. It is seen directly in a defect of retention and recall. The subject's original sequence, 6-3-5-1-4-2, is changed after a few minutes to 6-5-3-4-1-2. It will be observed that there are two inversions here; 3 and 5 have been transposed, as 1 and 4 have been. The second recall, elicited shortly thereafter, is again changed to 6-3-5-4-1-2. This represents one inversion in relation to the original sequence involving 5 and 3; and another inversion in relation to his first recall involving 1 and 4.

Direct evidence of organic brain damage is also seen in the patient's omission of Object 4 when he decides on the original preferential sequence. Having placed five of the six objects, he believes he has completed the task.

A marked limitation of conceptual thinking is observed in this record. The patient is able to perceive a "mother and child" in Object 6 and an "elephant" in Object 5. The "animal with a baby in a pouch," seen in Object 3, then takes on some of the attributes of the more clearly perceived object (6) and becomes "a mother and a child," which again is dimly perceived as unsuitable and changed again: "No, it's more like an animal than human." By a fusion of these two images, it becomes, later on, "the animal and the child."

Stereotypy is a predominating element of this record. Not only is Object 6 regarded as a mother and child, but this most clearly perceived and best-accepted image is projected into other objects. Hence, he sees in Object 3 a "mother and a child" and in Object 2 "a child there and a parent." When viewing Object 1, he starts out by saying, "It looks more like a —" and one suspects that he is tempted to say "mother and child" again. He refrains, however, because he recognizes his own stereotypy, but the thought comes out in his association: "the nearest I can get to any of them is this mother and child [6]." He is angered by his own limitation of conceptual thinking at this point and projects this onto the test objects, saying, "As for the rest, they're a bunch of rubber."

Uncertainty, due to confusion, is observed in some of his re-

sponses. For example, in his response to Object 2 he says, "Could this be a child? No—No—I don't know." He tends to cover up this uncertainty—caused by his limited ability to understand this and other external objects making up the test material—by returning to the one object he has recognized as a definite percept, Object 6. Three times, in a state of indecision about these objects, he returns to the familiar one and makes some reference to the mother-and-child image he has perceived in it.

Comment on his inability in understanding directions is also relevant. At first, although he is asked to designate his preferential sequence, he offers the few projective images that occur to him. Further instruction is required to get him to understand what is wanted. Similarly, when value judgments are requested, projective images are offered again. No effort is made to elicit a story since it is felt that this subject's comprehension of the request would be too limited.

The material of this record is being considered solely from the diagnostic point of view, since any sort of dynamic interpretation would be precluded by the patient's confused perception of the objects. It would be false and misleading, for example, to interpret his preference for Object 6 as acceptance of the mother figure. It is much more reasonable to assume that this preference arises out of his clearer perception of it as a recognizable object. Nor would the interpretation of the meaning of his preferential sequence be valid since, in his beclouded mental state, sequence is so inconstant.

DISCUSSION

With the completion of this study, the KCK begins to assume the dimensions of a definitive projective technic. Although the case studies reported here represent only a beginning effort, a body of information about the use of cypress knees as test objects has already been established.

1. The method of administration appears to be well founded. Using only six test objects, the test ordinarily takes 10 to 20 minutes to administer. Yet in this brief time, and with so few stimulus objects, one is able to offer three distinct testing situations: (a) object-choice, which is divided into (1) preferential sequence and (2) value judgment; (b) projective images; and (c) story construction.

2. Object-representations have been established. In the main, the six test objects symbolize the "mother," the "father," the "child," the "sexual object," the "bad object" and the "good object." As further research continues, new representations will doubtless be added, but the basic ones have already been discovered.

3. A method of interpretation of records, based on object-relations processes, according to Fairbairn's theory, has been devised. This takes into consideration: (a) object-representations of the various objects; (b) object-choice in terms of acceptance or rejection of the object; and (c) object-relations technics in dealing with internalized and external objects. While this constitutes the essence of KCK record analysis it does not preclude the use of other scoring and interpretive devices. The usual criteria employed in the analysis of Rorschach records may be applied to the KCK, and some future reports will concern themselves with this aspect of record analysis.

* * *

Even in its early state of development, it is felt that the KCK is now capable of revealing a considerable amount of psychodiagnostic and psychodynamic information about the individual tested. This does not mean, of course, that the writer regards this test as a completed, refined test instrument. Much more work must be done. Several highly esteemed workers in the field of projective testing have begun their own studies with the KCK, and important findings are expected to come from these sources.

One is tempted to compare the KCK with other projective technics in order to answer the questions: "What does it contribute specifically, and does it give information unobtainable from other tests?"

It appears to have some inherent properties less likely to be found in the Rorschach technic. As three-dimensional "art objects" of an unstructured nature, cypress knees appear better suited than inkblots to serve as object-representations of internalized and external objects. They lend themselves better to object choice. They generally elicit more whole responses; and, because of this, each whole object generally becomes an object-representation. As a result of this, the KCK is well adapted for the basic theory of object-relations which is used to analyze the records.

The Phillipson Object-Relations Technique, while using the object-relations theory as a foundation, seems to the writer to have less appropriate test material than the KCK. Phillipson's test objects are cards containing structured situations of varying degrees of ambiguity. The subject must construct stories in the manner of the TAT. This makes the test, in a sense, not too dissimilar to the TAT, after which it is patterned.

The KCK utilizes, as one of its testing situations, the story construction technic of the TAT and, as another testing situation, the object-choice technic of the Szondi Test. The advantage of the KCK over these two tests lies principally in the fact that it uses unstructured test material. The pictures of the TAT and Szondi must be considered to be definitely structured.

The writer feels that the KCK has a number of advantages over the Twitchell-Allen Three-Dimensional Apperception Test. The latter test uses 28 stimulus objects of three-dimensional proportions. These are ambiguous plastic figures, varying from geometric forms to generalized organic forms, to more concrete human or animal forms. There are many more pieces than in the KCK, which, naturally, makes the Twitchell-Allen test more time-consuming. Further, its pieces are structured. Finally, the test was apparently never fully developed into a widely-used projective technic and, for this reason, probably lacks sufficient normative data.

The World Test, with its 232 structured pieces, and the Make a Picture Story (MAPS) Test, with 67 cut-out figures as stimulus objects, suffer from the objection applied to the TAT and Szondi Test; they are highly structured. The MAPS Test offers only one testing situation, story construction. Furthermore, the World and MAPS tests use bewildering numbers of test objects in contrast to the six pieces employed in the KCK.

It is the writer's conviction that the KCK is a unique contribution to the field of projective testing, utilizing ambiguous, unstructured stimulus objects that are perceived by the individual as object-representations, specifically contributing information about the object-relations he experiences with internalized and external objects. The collection of normative data has just begun. Much research is still ahead. The information already at hand, however, appears to offer promise for the future of the KCK as a clinical instrument for the detection and measurement of the

psychological tendencies which have vital bearings on an individual's relationships with other people.

CONCLUSION

This study deals with the test performances and record analyses of eight subjects to whom the Kerman Cypress Knee Projective Technic (KCK) was administered. Diagnostically, these subjects represented the following categories: schizophrenic, depressive, phobic, paranoid, obsessional, hysterical, delinquent, and organic. Their records were evaluated in the light of basic theoretical factors of the object-relations theory developed by Fairbairn. It is concluded that the KCK is a unique contribution to the field of projective testing, utilizing ambiguous, unstructured stimulus objects that are perceived by the individual as object-representations, thus specifically contributing information about his object-relations with internalized and external objects.

The test findings reported here are admittedly an early effort, and much further work will be required, it is felt, to arrive at a refined clinical instrument for the detection and measurement of the variables of interpersonal relationships.

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AN EXPERIMENTAL CONTRIBUTION ON CHLORPROMAZINE JAUNDICE*

BY RUDOLF B. FREUND, M.D., AND N. MICHAEL LEVINE, M.D.

Jaundice as a specific complication of chlorpromazine (thorazine) treatment is universally considered to be caused by a cholangiolitis which leads to an intrahepatic obstruction. Pathologic examinations reveal blocking of fine biliary canaliculi between the liver cells; a few bile thrombi; hepatic infiltration with lymphocytes and eosinophils without signs of parenchymatous destruction; and accumulation of bile in parenchymal and reticulo-endothelial cells without dilatation of the interlobular ducts. All authors seem to agree that this picture is characteristic of cholangiolitic obstructive hepatitis and is similar to those observed in arsphenamine and methyltestosterone jaundice.

Menguy and associates offer as an explanation for the development of jaundice, the theory that chlorpromazine causes an increased resistance of the sphincter Oddi and produces a stasis within the cholangioli in addition to a depression in the duodenal motility; while individual factors, such as impaired gall bladder function, fasting state and susceptibility of smooth muscles may also play a part.

A better-substantiated explanation can be based on *in vitro* experiments in the reactions of chlorpromazine on human bile. Thorazine solution added to bile causes a cloudy, permanent precipitate, which remains irreversible with changes of pH within the range of normal pH variation of the bile, or with hydration of the mixture. However, addition of bile salts to the bile before adding thorazine, prevents the precipitation. The addition of bile salts also dissolves any existing precipitation when added to the bile-thorazine mixture. This phenomenon, indicating that an increased bile concentration prevents the formation of a thorazine-bile precipitate, was the rationale for this study.

Several questions were formulated on the theoretical assumption that *in vivo* there may be similar or identical processes of

*From Utica (N.Y.) State Hospital. This paper was delivered at the Upstate Interhospital Conference at Syracuse, April 15, 1957.

precipitation to those observed *in vitro* and that these may cause cholangiolitic hepatitis:

1. Is chlorpromazine itself exclusively the cause of the development of bile stasis, leading eventually to (obstructive) jaundice; or do other factors play significant parts?

2. Can this question be answered by serial examinations of the serum—that is, by liver function tests such as serum bilirubin, alkaline phosphatase and prothrombin time—a procedure described and advocated by a number of authors?

3. Does the rise of the level of these tests beyond the normal variation indicate subclinical liver derangement and incipient cholangiolitic hepatitis?

4. What happens in the liver function tests when a choleretic agent like bile salts is given concomitantly with chlorpromazine?

The answers to these questions should help to determine:

1. Can the three partial liver function tests (serum bilirubin, alkaline phosphatase, prothrombin time) be used as standard methods to judge the condition of a patient and the state of his liver reliably enough to foresee an impending jaundice?

2. Does chlorpromazine change the levels of the tests?

3. Do bile salts, added to thorazine from the onset of its administration, change the pattern of the tests, and can they, therefore, be used as a prophylactic treatment against jaundice?

4. Finally, is one justified in assuming that the phenomenon of precipitation of bile by chlorpromazine *in vitro* can be adopted to explain the pathogenesis of thorazine jaundice?

The writers, of course, hoped to find eventually the rationale for the use of choleretic and cholagogic agents as prophylactic and therapeutic measures for the cholangiolitic hepatitis induced by chlorpromazine. This problem is still under investigation.

While this study was in progress, it was reported in Switzerland that "Felamin" (a widely-known cholagogue consisting of bile salt and hexamethylenetetramine) had been used successfully in prophylaxis and treatment of chlorpromazine icterus.

METHODS AND MATERIAL

The present writers used, in their own investigations at Utica (N.Y.) State Hospital, "Decholin" (dehydrocholic acid, Ames) which is supposed to double or treble the volume of free-flowing bile. It was given in tablet form, 0.5 gm., t.i.d., with each dose of thorazine, 100 mg., t.i.d. This combination was well-tolerated and did not cause any side effects.

After the methods had been standardized in initial tests, two groups of chronic psychotic patients, 100 male and 100 female, were selected. According to histories and up-to-date examinations, none had any liver derangement, none had previously taken chlorpromazine, and none had any other contraindication to treatment.

Before treatment, all patients had bilirubin, icterus index and alkaline phosphates tests. In order not to crowd the laboratory, the investigations were carried out in groups of 10 patients on each test day (30 patients a week). The tests were repeated weekly, up to four weeks when new test groups were introduced. This limit of four regular weekly tests was observed in view of reports in the literature that one could expect a liver derangement, in the majority of jaundice cases observed, during the first month of treatment. However, in each group, selected cases showing an upward tendency of the test levels were continuously re-examined over the following six months.

RESULTS

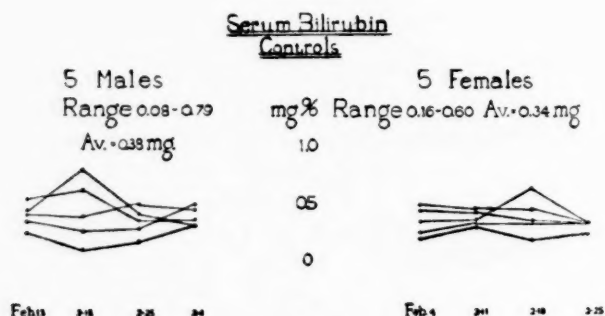


Figure 1.

Figure 1 shows the variations of the normal values of the tests as established in preliminary examinations.

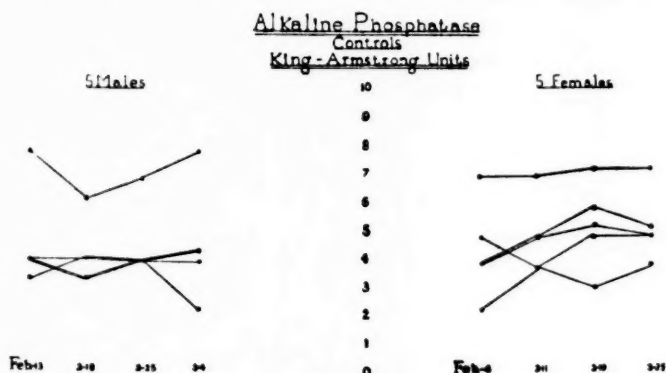


Figure 2.

Figure 2 shows the test results with alkaline phosphatase in 10 patients before treatment with thorazine, or with thorazine and decholin.



Figure 3a

Figure 3a demonstrates the average bilirubin level in patients

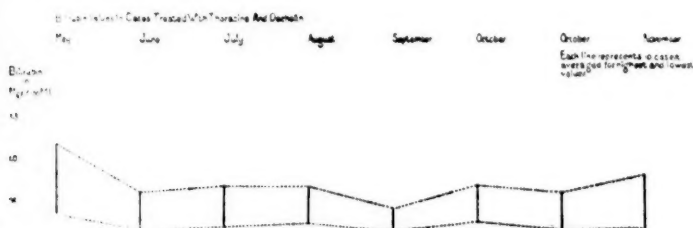


Figure 3b

treated with thorazine only and Figure 3b represents the group which received thorazine plus decholin.

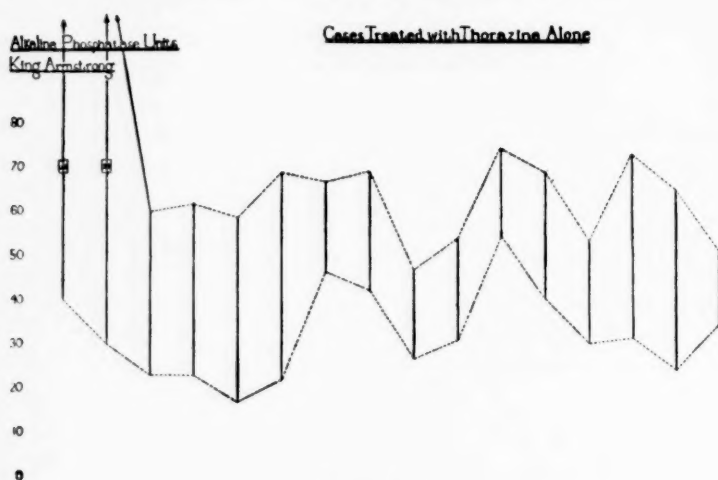


Figure 4a

Figures 4a and 4b represent the results of the alkaline phosphatase tests in the same two groups of patients.

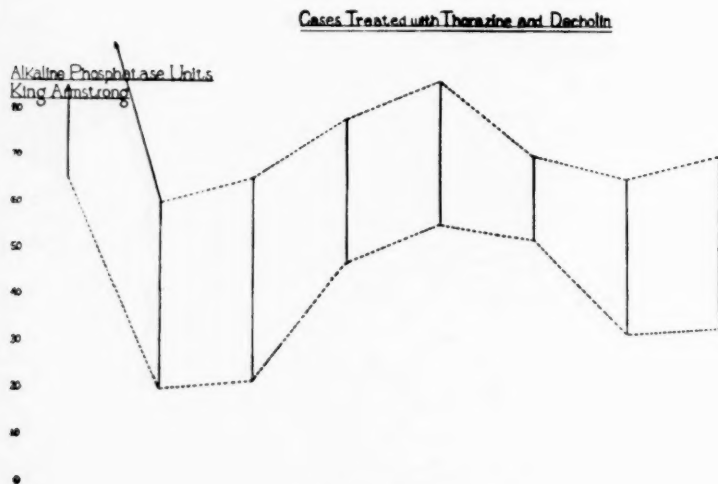


Figure 4b

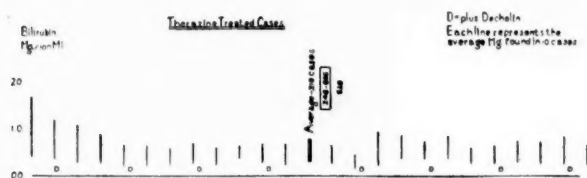


Figure 5.

Figure 5 gives a combined review of the bilirubin levels of all patients in both groups, the D's indicating the patients who received both thorazine and decholin.

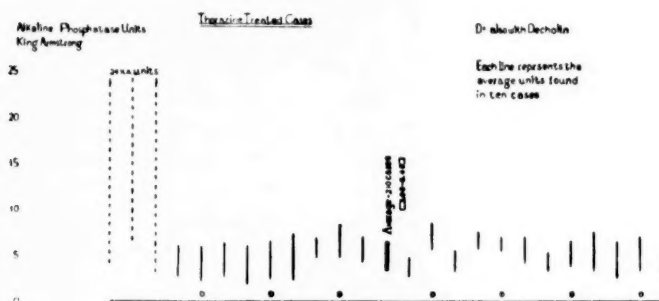


Figure 6.

In Figure 6, the alkaline phosphatase levels of both groups are averaged for the entire period of the observation time.

The prothrombin-time readings were so uniformly within a very narrow variation throughout, that the writers did not make graphs of this part of the investigation. The readings were 15 seconds ± 1 second during the entire period and were without any significant change.

The investigations—as far as shown in the figures—have been terminated; some side inquiries connected with the addition of decholin to the treatment are still under way and will be reported on later. The treatment of the 200 patients with thorazine continues and the clinical data will be integrated in the later report.

DISCUSSION

Thorazine jaundice has been reported by almost every author who is engaged in clinical work with chlorpromazine.

It is impossible to quote every publication mentioning it. However, to give a few statements of outstanding authorities it may

be recalled that Pollack reported its incidence as high as 4 in 100 patients; Goldman saw 2 cases in 1,000; Stark, 2 in 300; Schott and Hyvert, 2 in 100; a summarizing review of the French literature reports an incidence of 1 in 100; Stacey and associates saw 8 cases in 170; Cohen and Archer, 5 in 800; and Lebhardt records 11 cases in 394 patients. It seems safe to say with Cohen, that the occurrence of jaundice is erratic. All authors agree that this drug-induced jaundice is the outstanding clinical sign of an obstructive icterus due to cholangiolitic hepatitis, and similar to the picture observed under arsphenamine or methyltestosterone treatment. All agree that it occurs within the first three to four weeks of administration of the drug. The writers' concerted effort to study this phenomenon from the first subclinical sign in 200 chronic, mentally sick patients, selected at random, failed. The serum bilirubin, prothrombin time and alkaline phosphatase tests were selected, as they had been by other investigators, as those which might give early indications of impending liver derangement—after serum levels had been established at the onset of treatment. Each patient received 300 mg. of thorazine orally a day—three doses of 100 mg. each. The writers have followed up this group for more than six months. The work indicated a comparatively wide variation of the laboratory tests within accepted normal limits. About one-third of these patients received in addition, dehydrocholic acid (decholin), 1.5 gm. daily, with the assumption that a powerful choloretic agent might prevent jaundice or might produce significant changes in the blood levels of indicative tests. The writers, as shown in the figures, have not seen appreciable differences between the patients treated with thorazine alone and those treated with thorazine plus decholin.

The possibility cannot, of course, be excluded in view of the "erratic" incidence of jaundice, that one or two jaundice cases might have occurred in this last group of patients, if the choloretic had not been given. One may again draw attention to Lebhardt's statement that he has not observed any case of jaundice in his hospital since giving a choloretic routinely during the first four weeks of administration of thorazine. Investigations continue, to determine if the therapeutic use of a choloretic can clear up a jaundice more rapidly than without it, and to see if one would be justified in continuing thorazine treatment in such cases—merely reducing the dosis. This last course of treatment might well be recom-

mended in view of the trend toward treating the symptoms of side effects rather than discontinuing treatment altogether. It should be pointed out that the writers, like others, have observed in new admissions, a number of patients who have histories of, or still show, thorazine jaundice. The writers also have seen newly admitted patients, who developed jaundice at the same rate, and within the same short time of treatment, as has been reported by others.*

SUMMARY

1. This study was intended to determine whether a choleretic agent could prevent—and/or could be the treatment of choice in—thorazine jaundice. A group of patients treated with thorazine and a group treated with thorazine and decholin were studied.

2. The rationale for such an investigation was based on experiments which showed that: (a) Thorazine causes, *in vitro*, the precipitation of human bile; (b) the addition of bile salts to the precipitated mixture reverses the process of this phenomenon.

3. Serum bilirubin, prothrombin time and the alkaline phosphatase level were determined in all patients during the course of the study as indicators of possible impending jaundice.

4. Laboratory tests remained within acceptable variations in all groups.

5. No case of jaundice was observed in either group.

6. Whether the *in vitro* phenomenon of precipitation of bile by thorazine can be accepted as an explanation of obstructive jaundice due to thorazine *in vivo*, cannot be decided on the basis of these investigations.

7. That cholestasis during the first four weeks of thorazine treatment might prevent jaundice remains possible.

*This difference of incidence between a selected group of patients who are chronically mentally ill and an unselected group of new admissions, may be accidental—following the erratic pattern of occurrence. However, scrutinizing the history of such cases, one cannot help but suspect that a number of newly admitted patients have been sensitized by having taken, at irregular intervals, small sample doses, carelessly handed out, without adequate investigation or examination—or without being told the nature of such “happy pills.” All that many new admissions or their relatives tell is that this or that doctor at this or that time, had given the patient a small package of six reddish, yellowish, orange or green, tablets. One may see such sensitization of a significant sector of the population by a new, potent and by no means innocuous, drug—as is now seen in the case of penicillin.

ACKNOWLEDGMENTS

The writers wish to express gratitude—for assistance given in the pursuit of these investigations—to the laboratory technicians, Johanna Gentile, Helen Blust, Mildred Coury, Mrs. Marion Nikodem and Carmela Catera, and to James McHugo, R.N. and Mrs. Adelia Landers, R.N., as representatives of the nursing staff. The encouragement of Director Bascom B. Young, M. D., of Utica State Hospital; the material help, expert advice and encouragement given by Assistant Commissioner Henry Brill, M.D., of the New York State Department of Mental Hygiene, who suggested this study; and the help of the research division of Smith, Kline and French are hereby gratefully acknowledged.

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MODERN TREATMENT OF SCHIZOPHRENIA*

BY ARILD FAURBYE, M.D.

In these days, when almost every psychiatric periodical brings reports of new pharmaceutical preparations for treatment of schizophrenia, it should be worth while to try to review the whole aspect of the treatment of this disorder.

The subject divides itself into two parts, the treatment of chronic cases, and the treatment of acute or newly-admitted cases. In most mental hospitals—certainly in the Danish—50 to 60 per cent of the chronic patients are schizophrenics; and the treatment of these patients is, therefore, of the utmost importance. Recent experience has shown that it is possible to discharge a number of them, even after many years in the hospital, and to get them assimilated in the community. The problem in treating new cases is to prevent them from becoming chronic.

The writer will now try to describe the viewpoints he has arrived at from personal experience. The discussion will begin with the treatment of chronic schizophrenics and, in the light of that, proceed to fresh cases.

TREATMENT OF CHRONIC SCHIZOPHRENIA

Since nobody knows what schizophrenia is, the question of the diagnosis of schizophrenia is always a problem, but when the chronic cases which accumulate in mental hospitals are considered, not much discussion seems to be needed.

Since we do not know the cause of schizophrenia, the treatment must be symptomatic; and, therefore, it is necessary to dwell a little on the symptoms. With regard to treatment, the most important of those are: (1) autism (withdrawal), (2) disturbance of emotions, (3) hallucinations, and (4) catatonic symptoms.

Autism, the tendency to withdraw from reality and live in one's own world of thinking, is one of the most characteristic features of schizophrenia and is the most important symptom when therapy is considered. Even if the symptom of withdrawal is only moderately pronounced, it may mark the clinical picture strongly. In pronounced cases, the patient lives in his own world of thinking

*This paper reflects theory and practice in Denmark. It was read by Dr. Faurbye, director of Sct. Hans Hospital, Roskilde, Denmark, on a visit to Rockland (N.Y.) State Hospital on September 3, 1956.

and fantasy, he loses interest in and contact with his surroundings and his relatives, he does not answer questions and gets angry when disturbed. His own thoughts and ideas dominate his consciousness, so that he does not compare them with, or adjust them to, reality. If pronounced, the withdrawal symptom is very characteristic and easy to ascertain. Slight withdrawal may be difficult or impossible to ascertain with certainty.

Disturbance of emotions may seem to be emotional blunting—because of withdrawal. A schizophrenic patient may, for example, not react to, or show any interest in, the information that his wife or his child is dead. That does not mean that the schizophrenic has no emotions; it means that his emotions are switched from reality toward his own world of thinking. Emotional outbursts are, indeed, often seen. The schizophrenic patient may explode in anger when disturbed, or when harassed by hallucinations, or disturbed by events which are trifles to others. The emotional reactions of schizophrenic patients are often incalculable.

Hallucinations of hearing are often the most conspicuous symptom of schizophrenia. Voices may comment upon every action of the patient; unpleasant comments or accusations often arouse the patient's anger. Auditory hallucinations are the most frequent causes of violence among schizophrenic patients.

Catatonic symptoms or psychomotor symptoms appear in milder cases as awkwardness, stilted and ungraceful movements, grimaces, mannerisms and stereotypies. In some cases, the patients stiffen in stupor; in others, the psychomotor symptoms are restlessness, or are purposeless unrest and excitation in the most violent form. In recent years, pronounced catatonic symptoms appear less frequently, because of modern treatment, which aims at directing patients' motor activity into purposeful channels.

Principles of Treatment

Treatment must now be directed against these symptoms. All measures which work against them have to be taken, and all things which increase them have to be avoided. By this procedure, it is possible in some cases to make the patient free of symptoms even after many years of frank disorder—as will be shown later.

It is important to treat somatic ailments. Persons with asthenic constitutions, which are frequently seen in schizophrenics, generally display low resistance against common infections. They, there-

fore, often have focal infections of teeth, larynx, bowels and so on—and sometimes show more or less malnutrition. When such ailments are treated, and nourishment is improved, the psychic condition often improves also.

The most important means of influencing the schizophrenic psychosis is psychotherapy in its broadest sense, that is: (1) milieu treatment, (2) occupational therapy, (3) activation therapy, and (4) entertainment. There are special supporting methods of treatment besides: (5) pharmaceutical treatment, (6) electric shock treatment, (7) insulin coma treatment, and (8) prefrontal leucotomy.

Milieu Treatment. All of us are influenced by our surroundings; in pleasant and healthful surroundings, we feel better than under bad conditions. This general experience must be used consciously to arrange a favorable milieu for the patients.

In the hospital, the patients' milieu consists of the ward, with its special routine, the other patients, and the staff. The writer thinks the beds in a ward should number 15 to 20 and never exceed 24, because the ward nurse cannot handle more than 24 patients adequately; she cannot have sufficient personal contact with a greater number. More than 24 will also easily create turmoil.

The bedrooms should not be single rooms, since schizophrenic patients cannot endure being alone. Single rooms give them too much opportunity for isolation and withdrawal to their private morbid worlds. When this was not understood, isolation used to be used in treatment of psychotic patients who were noisy and violent. In schizophrenic patients, this increased the withdrawal; the patients acquired stereotypies, mannerisms, bad habits of dressing and eating, became untidy and uncleanly, noisy and irascible; deterioration of personality could go on undisturbed. But since this has been understood and isolation of schizophrenic patients has been stopped, "cell-products" have not been developed. The writer thinks bedrooms for two, four and six are the best arrangements.

Every ward ought to have a special dining room where the patients can take their meals together at tables for four to six. The table should be laid with cloth and napkins, spoons, knives and forks. As far as possible, the food should be served in dishes at the table. Flowers on the table will dot the "i."

From personal experience, one knows what it means for the appetite and one's feelings to sit at a neat table. Good eating habits cannot be expected at an untidy table with defective tableware. And even very deteriorated schizophrenics can be taught to be neat at the table and behave well. The better they are treated, the better they behave. But of course the secret about good table manners is to prevent the patients from acquiring bad manners. When first they have acquired bad manners it can be very difficult or impossible to teach them good manners; it may take years. When the patients are well-treated and the staff is well-trained and experienced, the writer thinks, there is no danger in letting the patient handle forks and knives, at least he has had only good experiences.

The living room of the ward should be so large that the patients can stay there without being too close to each other, it must have comfortable chairs and sofas where they can sit with needlework in their spare time, tables where they can sit and write letters and play games, much like a private sitting room for a large family. A cat in the ward and birds in a cage will cheer many patients, care for living creatures may impress a schizophrenic more than contact with fellow-beings. The neater and the cosier the sitting room is, the better the patients behave. Some years ago the writer saw a striking example. In a large ward, there were two sitting rooms; new furniture was put in one of them, while the other continued to have old wooden benches and chairs. In the room with the new furniture, the patients behaved well, they sat in orderly fashion in the comfortable upholstered chairs; but, in the other room, they could sometimes be seen to maltreat the old ugly wooden benches and tables.

The question of open or closed wards is important. It is well known that permitted acts are by far less attractive than prohibited ones. In the writer's own experience, when the high walls around the hospital gardens were replaced by low fences or hedges or nothing, fewer patients tried to escape; and patients who had been untidy and ill-mannered when hidden behind the walls became neat and behaved well when they could look over a low hedge and be looked at from the outside by strangers. This behavior seems to show a common human trait. A patient may try repeatedly to run away from a closed ward; but, when he is allowed to go out alone, he does not try it. A patient may demand permis-

sion to go out freely; when he gets the permission he does not use it.

Patients living in a closed ward frequently complain of the locked doors, they feel imprisoned, even if they themselves have permission to go outside. That is of course illogical, but it is an emotional question, and emotions have nothing to do with logic. There is no doubt that locked doors are a severe emotional stress; and the writer thinks that most wards can be open when the patients are well treated and the staff well trained.

The daily routine for the patients must be planned along psychotherapeutic lines. The main point is that every hour of the day must be occupied to prevent the schizophrenics from withdrawing and from acquiring peculiar habits and manners. The mental hospital must have different types of wards so that patients can be placed, according to their psychotic condition and behavior, among others on the same level.

The patients should not spend more than eight or nine hours in bed, because adults cannot sleep longer; and idle wakefulness in bed is an evil for schizophrenic patients, as it furthers withdrawal. When the patients stay up long enough to be really tired, they sleep better; sleeping pills can be dispensed with; and much nightly disturbance is avoided.

In the daytime, there must be definite hours for morning toilet, for evening toilet, for meals and for work, identical from day to day, to establish good and regular habits. A whole ward forms a uniform group.

When starting habit-training along these lines, it is an advantage to divide the most difficult patients into small groups of five to 10 or 12 persons. One nurse or aid then leads the group from morning to noon, another from noon to bedtime—always the same nurse or aid. The group leader must keep the group together and create a group spirit, establish contact with the patients and mutual contacts among the patients, see that they wash and dress in orderly fashion, and that they eat neatly. The group leader must accompany them to work, sit down among them and work with them. When well-trained and experienced nurses work with such small groups, it is possible to influence the patients much more strongly than when the nurses work with the whole ward as a group. The working principle in this habit training, whether

in a small group or in a ward as a whole, is the human contact between the nurse or aid and the other members of the group. The talented nurse knows by intuition how to create such a contact; and this, above all, can drag the schizophrenics out of withdrawal.

When a patient improves, he must be moved to a better group or ward to take advantage of the improvement. The less difficult patients should have some spare time at their own disposal; they are to learn gradually, as a preparation for discharge, to occupy themselves without withdrawal.

When a patient reaches a higher level, it is important to give him duties and responsibility, he must learn that he is himself responsible for his behavior and actions. Without that responsibility he would be in a bad way when discharged.

At times, the experienced psychiatrist will have a feeling that a certain patient will react favorably if he is moved to the best ward and receives all privileges. Such a sudden change when done at the right moment, may be followed by rapid and necessary improvement.

Occupational Therapy. Occupation or work is—or can be—one of the best means of keeping patients in contact with reality. It must always be remembered that occupation or work is a means of influencing the psychic condition; it is never a goal in itself. When work is to act as therapy, it must fulfill certain conditions. In this respect, the writer fears that there is some difference between the viewpoints in Continental and in Anglo-Saxon psychiatry. In Continental psychiatry, there is a tendency to regard regular work and full working hours as the treatment whereas, in Anglo-Saxon psychiatry, there is an inclination to prefer a more hobby-like occupation.

In the writer's opinion the following qualities ought to be required of the patients' occupation: 1. It must be of use. 2. It must be of interest to the patient and have a suitable degree of difficulty. 3. It ought to give the patient some motor activity. 4. It must be of suitable duration.

It is important that the work be useful, so that the patient can see a purpose in working. The writer thinks all of us are inclined to be irritated and discouraged by doing useless work, and inclined to scamp it. Further the work should be of such a kind that the

patient can take an interest and feel delight in it, so it can divert the patient's thoughts better, and occupy his emotions.

The regressed schizophrenic should have an easy job that does not surpass his ability. But there is some danger in easy work, it can be learned automatically and can form a new habit in addition to the patient's other habits if it is too facile. When a job has been learned the patient should be tried at new, more difficult and more complicated work, since work is a therapeutic means to influence the patient and not a goal in itself.

Working in a garden or on a farm is suitable for many male patients; it is useful, and demands different degrees of ability and skill. It has variety and can produce satisfactory fatigue. A certain amount of motor activity is to be desired, whatever the work is. Motor activity disposes of much unrest and aggressiveness, and the tired patient sleeps better and requires less medicine.

Domestic work is, in the same manner, suitable for many schizophrenic women. Fine needlework, knitting and other forms of sedentary occupations are, in the writer's opinion, less fitting for schizophrenic patients during working hours, but are to be encouraged for patients' spare time in the evenings.

It is necessary to have definite working hours. At Set. Hans Hospital, the daily work periods generally total four and one-half hours, but the writer is inclined to think they are too short.

It is the part of the staff to create an atmosphere of industry and make the patients enjoy their work.

Activation Therapy. Motor activity, such as ball games, gymnastics, dancing and other forms of bodily exercise, is an important means of creating contacts between staff members and patients and among the patients themselves, besides repressing withdrawal.

Ball-playing can be a means of attaining the first contact with a severely withdrawn or stuporous schizophrenic patient. A large soft ball, which cannot hurt him, is thrown at the passive patient, toward his breast, abdomen or head. The patient, in most cases, soon tries to defend himself, knocking the ball away, then trying to catch and return it. By step after step he becomes engaged in playing ball with the nurse and then with other patients. Some patients get angry at this procedure, and then one has to try in another way.

Daily gymnastics in small groups for half an hour or so provide a good opportunity to create contact and group feelings; and

patients with sedentary work then get sound bodily fatigue from the exercise. Motor activity removes much unrest and aggressiveness. When unrest is developing it is often possible to avoid it by giving the patient an hour of gymnastics, thus directing his activity into sound channels, thus, in turn, influencing the emotions.

Entertainment. The daily routine should be interrupted at times by entertainment of some sort, since life should not consist of work and habit-training only.

Sundays can be marked by going to church and for walks. National holidays should be celebrated.

At intervals, there should be dances, the cinema, lessons in singing, performances and so on. The most valuable forms of entertainment are those in which the patients take an active part as in singing and dancing. A women's ward might sometimes invite the patients from a men's ward, for tea or coffee, to be followed by dancing for a couple of hours.

When men and women patients have opportunities like meeting, working together in workshops, and dancing, much unhealthy sexual tension is avoided. The writer thinks this problem is somewhat neglected in some places.

Perhaps the most important sort of diversion and entertainment is the home life in the ward where there is good opportunity to break down withdrawal and create contact.

Patients' birthdays should be celebrated on the wards. Even much-deteriorated schizophrenics can be impressed by having flowers and a little gift from the superintendent, and by having a party with chocolate and so on. On ordinary evenings, the patients should be assembled in the living room, and occupied with such things as reading, writing letters to relatives, playing games, and doing needlework. The nurse should sit among them and talk with them, occupying herself as the patients do. This is a special opportunity for the talented nurse to create contacts and make life comfortable and "cozy" for the patients. A small extra meal may make life sweeter occasionally.

Special Methods of Treatment

The psychotherapeutic lines just described for treatment of schizophrenia are, in the writer's opinion, still the main means of influencing that psychosis. The psychotherapeutic attitude of the

hospital is the background against which the special therapeutic procedures are to operate.

Among the special treatment procedures, the pharmaceuticals have advanced to the front line in recent years; but when the psychotherapeutic background is not in order, one does not utilize all the possibilities which the new drugs give.

Pharmacotherapy. Although the systematic use of psychotherapy in the broadest sense will remove noise, violence and bad habits in most chronic schizophrenic patients, there are still some in which this is not effective enough, they may be violent when harassed by hallucinations, or angry and distrustful because of delusion.

In such cases there is indication for one of the new drugs. In a few days of drug therapy, most patients calm down, then they become easier to make contact with and easier to handle; they have more sense of reality. Hallucinations do not generally disappear, but they do not matter so much any more. And so, step by step, a patient may become more and more nearly normal in the course of some months. Also, patients who are tranquil, but for years have been in a stable psychotic condition, can—under the influence of a drug—be seen to change gradually and become nearer normal.

The writer is inclined to think that the mechanism is this: The patient under influence of the drug is more affected by the environment. When one merely gives pills and does nothing else, there are poor results. When the drug is combined with psychotherapy on the lines described, there are much better results. When a patient—after many years in the hospital—improves under the influence of a drug, reaches a stable level and is then discharged, further improvement may follow, presumably because the patient now is under the influence of a more normal environment than the hospital milieu.

Since November 1954, Set. Hans Hospital has discharged 13 schizophrenic patients, who had been hospitalized for five to 23 years (the hospital has about 250 patients with chronic schizophrenia). Some of the discharged patients have improved amazingly after release; they are now symptomless, have full-time occupations and are entirely assimilated in the community. But the writer does not know whether they are cured.

Chlorpromazine has been in principal use, and the best results

have been had with it. Amounts administered have seldom been more than 300 mg. daily, generally divided into three or four doses.

Here is an example:

L. P. was admitted to the hospital in 1933; she was 29 years old. She had always been somewhat difficult, her mood had been labile, and she had broken contact with her family several times for as much as six months at a time. About 18 months before her admission, she began to hear voices; and, when admitted, she said that she was used as a medium by her neighbors. She felt waves of heat, and was influenced by radio waves, electricity and light. She complained of being split into two persons and of the feeling that everybody knew her thoughts. One morning, she said she had been cut to pieces during the night by a butcher, and put together again in the wrong way; her legs were not her own.

Soon after admission, L. P. had a period of stupor with catalepsy. In the following months, she became extremely excited, sang, shouted, and was extremely aggressive. Contact was impossible. Then came another period of stupor.

This pattern of behavior continued for years. For short periods, she could be lucid and ingratiating; but, almost always, she was very violent without any contact, spoke incoherently with neologisms, and was harassed by hallucinations. From 1943 to 1954, she had more calm periods and could sometimes be occupied with domestic work. Even at the best of times, however, she had sudden outbursts of anger almost daily, with scolding and aggressiveness, presumably because of hallucinations. She thought the staff would kill her. ECT had only a short effect or no effect at all.

Treatment with chlorpromazine was started January 10, 1955. In a month, the dosage was raised to 300 mg. daily. She then became calm and did not react to the voices. She never has been aggressive since. She became occupied regularly with domestic work. In March 1955, she was allowed to go out alone. In May, she moved to a better ward. In June, she visited her sister for eight days, and was a little restless and irritable for some days afterward. In August, she visited her brother for eight days and returned in good spirits. In September, she went for another eight-day visit to her brother, and enjoyed the vacation.

After this, she gradually became more normal in behavior, never complained of hallucinations and never showed signs of them. She was always friendly and helpful in the ward, and occupied herself industriously.

In December 1955 and January 1956, she visited her sister for a month, behaved normally during that time, and returned in good spirits. The daily dosage of chlorpromazine was then reduced; and, from March 1956 on, she had 200 mg. daily.

L. P. was discharged on April 4, 1956, and went to live with a sister. She continued on chlorpromazine, 200 mg. a day. She showed no symptoms

of schizophrenia, and behaved normally generally. She is still discharged, and all reports are satisfactory.

Electric Shock Treatment. ECT can often tranquilize a disturbed schizophrenic and normalize the psychic condition to a certain degree. But, with chronic schizophrenia, the effect is not long-lasting; after a few days or weeks, most patients relapse. When the effects are not too brief, ECT can be used to start habit-training and occupation, and thus avoid complete relapse; in some cases, this procedure has to be repeated several times.

When chlorpromazine, or reserpine, or a combination of these two drugs does not tranquilize a schizophrenic patient, there is an attempt to get a remission with ECT. Immediately after the last shock, intensive chlorpromazine treatment is started and may then succeed.

Insulin Treatment. Insulin coma treatment has now been abandoned, but insulin is still used in subshock dosage as a sedative, either alone or in combination with chlorpromazine.

Prefrontal Leucotomy. In the last two years, prefrontal leucotomy has been used in only one case, which was completely resistant to all other forms of therapy.

TREATMENT OF ACUTE SCHIZOPHRENIA

Experience gained in the treatment of chronic schizophrenia should be used in the treatment of newly-admitted acute cases.

Withdrawal from others is recognized as most devastating for the personality, but it has also been learned that withdrawal can be fought successfully along psychotherapeutic lines, and that it is easier to prevent it than to fight it. The more nearly normal the environment, the better for the patient. The community, with its many possibilities of interpersonal contact, is, therefore generally better for the patient than the artificial hospital environment. One conclusion from this is that a schizophrenic patient generally should be discharged as soon as the acute symptoms which have made admission necessary have been suitably treated and are under control. In this manner, the writer thinks, deterioration can be averted in most cases.

Acute symptoms, like anxiety, anger, violence, restlessness and agitation, can generally be brought under control in a few hours or days by chlorpromazine, reserpine or ECT. After they are controlled, the patient must learn to join the other patients, to comply with the routine of the ward, to make contact with the surroundings, to do regular work, to gain confidence in the staff.

This is the time for consolidation and stabilization of the psychic condition; and the period must vary considerably for different individuals. It should not be too short, hardly less than two or three months.

If the patient begins to gain insight into his disease and to acknowledge reality, this is prognostically favorable, but such a beginning of insight may not always be obtained. In successful cases, hallucinations and delusions gradually concern the patient less and less; and then it generally will be time to think of discharge. The proper time for discharge is often difficult to decide, since it depends not only on the patient's condition, but also on the family situation, on social conditions, and on possibilities for after-treatment.

When the patient seems to have reached a reasonably stable condition, and has attained some insight or acknowledges the need for after-treatment, it is usual to begin to prepare discharge, to discuss the problems with relatives, help the patient get his social affairs in order, seek lodgings, employment, and so on. It is considered important to prepare the discharge carefully, since the transition from the protected existence in the hospital to the outside world always brings stress. Difficulties are not removed for the patient, but he is helped to surmount them himself. Most important is the support that can be given in the out-patient clinic, where the waiting room functions as a sort of social club. Even patients without any insight can be seen to meet each other there regularly, perhaps because of an unconscious feeling of ease, understanding and contact with equal fellow-beings. Most patients continue pharmaceutical treatment after discharge. The writer is inclined to think that continuation is necessary for a long time; most patients who relapse are among those who have discontinued pharmaceutical treatment by themselves, or are among those whose treatments the therapists tried to terminate—but there have been only a few such experiences.

Not all of the possible lines of treatment are taken up in this paper; and there are many exceptions to the smooth course of treatment; not all cases are so easily controlled as the results reported might suggest. The most difficult cases are those which begin insidiously in puberty or early youth without acute symptoms. Most such cases seem to be uninfluenced by drugs, and it is difficult to avert some degree of withdrawal. Because of lack of in-

sight, other types of patients cannot be persuaded to stay long enough in hospital for stabilization. Others cannot be persuaded to continue pharmaceutical treatment after discharge.

The developments of recent years have provided powerful new tools, and the future should bring still more. But it is just as well to abstain from prophecy.

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METHEDRINE INTERVIEWS: CLINICAL AND RORSCHACH STUDIES*

BY GORDON TEMPLETON, M.D., AND VANN SPRUIELL, M.D.

"Methedrine"** (desoxyephedrine hydrochloride, methamphetamine, pervitin, desoxyn, and so on) is a drug first prepared in 1919 by Ogata,¹ first studied physiologically by Hauschild in 1938,² used in recent years orally as a stimulant, and even more recently, as a diagnostic aid and adjunct to psychotherapy.

This study was undertaken to attempt to learn more regarding methedrine's usefulness in facilitating diagnosis; to elucidate changes in psychological functioning with methedrine, as shown clinically and by Rorschach studies; and to evaluate the experimental interviews as guides to future dynamic psychotherapy. It is the writers' hope that this study will clarify indications and contraindications in the use of methedrine, elucidate the safeguards necessary for the protection of the patient in his psychotherapy, and consider the possible prolonged effects observed after the immediate interview period.

Methedrine is a sympathomimetic amine with a strong stimulating effect on the central nervous system. It is closely related to amphetamine in structure; physiologically it produces stronger central and weaker peripheral sympathetic effects than that drug. It is well known that several of the drugs in this chemical group produce striking effects on brain function.³ Methedrine will, like mescaline and lysergic acid, produce a temporary "model psychosis," when given in amounts exceeding 100 mg. intravenously. It has been suggested that all three possess a common mode of action; they are reported to be absorbed by protein in quantities inversely proportional to the amounts necessary to produce the psychosis.⁴

The physiologic effects of 20 to 40 mg. of methedrine intravenously are pronounced.⁵ Many of these effects are the expected peripheral sympathomimetic phenomena; others seem to have more to do with central nervous system stimulation. There may be temporary hypernea, decreased oral and nasal mucosal secretion. The blood pressure rises systolically by 10 to 90 mm., diastolically by 5 to 20 mm.; the level reaches a maximum within

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**Supplied for this study by Burroughs Wellcome Company.

a few minutes and may persist for from one to six hours. The pulse increases moderately, and the patient may be aware of palpitation, and either flushing or clamminess of the face, dry skin, cold hands, tingling extremities. These are transitory, disappearing in five to 10 minutes, as do the frequent frontal or generalized headaches.^{6, 7}

Often patients report a combined feeling of muscular strength and relaxation, after an initial period of tension. Muscular spasms, psychogenic in type, may be relieved. Patients frequently describe an increase in acuity of all sensations, and a decrease of sensitivity to pain.^{7, 8} Electrocardiograms have been unremarkable save for occasional ventricular extrasystoles.⁷ Electro-encephalograms have shown either no significant change⁷ or occasional and transitory changes in epileptoid patients, without, however, clinical correlates.⁹

There are reports of habituated patients consuming methedrine in amounts of 80 to 270 milligrams orally each day.⁹ Aside from prolonged sleep on discontinuation, no untoward effects occurred. There are no reported cases of true addiction or withdrawal symptoms as the result of oral or intravenous use of the drug. Because of fatigue and increased need for sleep after oral habituation, both amphetamine and methedrine were placed under the narcotic laws of Germany in 1941, but no such restrictions have been enacted in the United States. Because of reports of hypomanic states and paranoid illnesses in chronic oral usage of amphetamine, methedrine as a related compound should be used with caution.

Clinically, Levine and co-workers⁷ found intravenous methedrine of definite value, producing "an emotionally charged free flow of material which may include painful memories, traumatic experiences, intimate personal fantasies, and delusional ideas. Most patients experience a dramatic relief of tension and feeling of relaxation. Mild depressions are often allayed. The psychologically rich response evoked... is helpful both diagnostically and therapeutically." They compared methedrine to intravenous amphetamine and amytal, and found that it possesses many advantages over either. Others have found the drug valuable in demonstrating hidden paranoid trends and in demonstrating the presence of basically schizophrenic disorders in some depressed patients,⁶ in the short-term treatment of amnesia,¹⁰ and in the production of therapeutic abreactions.^{11, 12} All reports agree that the drug may

be of marked benefit in psychotherapy, particularly in the increase of productivity of emotion-laden material, in the clarification of transference reactions, in the delineation of defense mechanisms, and in the reduction of time consumed in obtaining valuable conscious and preconscious material.^{13, 14}

There is disagreement concerning the reactions to methedrine of patients in specific diagnostic categories. There are reports of increased responsiveness, lessening of negativism, and more appropriate affect in patients with chronic schizophrenia, including those with catatonic reactions,¹⁵ as opposed to reports of increased dissociation, ambivalence and schizophrenic mannerisms.^{16, 17} Catatonics have been variously reported as showing an alleviation of stupor,⁷ and an increase of catatonic behavior.^{16, 17} Euphoria is pronounced "usual" in one study,^{16, 17} and present in only 37 per cent of the patients in another.⁸ Methedrine would appear to be particularly valuable in depression,^{7, 18} with stutterers,^{13, 19} and in severely inhibited patients, irrespective of diagnosis. It often has little effect in obsessive-compulsive patients with rigid organization. Pennes⁹ reported reduction and intensification of psychopathology with about equal frequency, although there was more "normalization" with pseudoneurotic schizophrenics and more intensification with overt or deteriorated schizophrenics. Methedrine interviews have been used also in the treatment of psychogenic skin disorders.¹² They have been used in the medico-legal field,²⁰ and in practically every out-patient and in-patient situation.^{10, 13, 15, 18}

METHOD

Patients in all diagnostic categories were selected for this study when dynamic material was relatively inaccessible in the regular interviews. The study group (Table 1) was made up entirely of 21 in-patients in the Payne Whitney Psychiatric Clinic. All had received the usual medical and psychiatric work-up, and had been in intensive psychotherapy for at least two months before the initial methedrine interview was held. Before the use of methedrine, there was a complete physical evaluation to exclude those with cardiovascular disturbances, and to avoid other possible complications. One to three interviews were held following the injection of 20 to 40 mg. of methedrine intravenously. Tape recordings of the interviews, each lasting an hour or more, were made. Most of the patients were under the care of the authors; with those who

Table 1. Diagnostic Categories of Methedrine Patient Group

A. Schizophrenic reactions	15
Catatonic	5
Paranoid	5
Hebephrenic	2
Pseudoneurotic	3
B. Affective reactions	3
Manic-depressive	1
Depression in aging	1
Chronic schizo-affective	1
C. Psychoneurotic reactions	3
Conversion hysteria	1
Anxiety hysteria	2
Obsessive-compulsive	0
21	

were not, the interviews were conducted by the patients' own physicians, with one of the authors present.

After experience with the first few patients, it was found that 20 mg. of methedrine often produced little effect in the second or third interviews; accordingly 30 to 40 mg. were given in all subsequent interviews. Blood pressure and pulse observations were made frequently with the initial group of six patients; these were

Table 2. Reactions to Intravenous Methedrine—21 Patients

	Incidence of factor pre- methedrine	Decrease	No change	Increase
Depression	11	7(2)*	8	6(1)
Dissociation of affect	18	14(5)	6	1
Anxiety	21	7	4	7
Resentment	7	6	7	7
Fear	17	7	6	7
Suspiciousness	16	7	7	6
Projection	12	3	13	5
Compulsiveness	12	0	16	5
Conversion symptoms	6	0	13	8
Denial	12	0	21	0
Rationalization	21	8	13	0
Insight	—	0	11	10(4)

*Numbers in parentheses indicate a marked change in this area.

Abreaction	Not produced	= 14	Produced	= 7		
New material	Not produced	= 5	Produced	= 16		
Transference problems	Damaging	= 0	Unchanged	= 11	Aided	= 10
Patient's evaluation	Negative	= 3	Neutral	= 5	Positive	= 12
Physician's evaluation	Damaging	= 1	No value	= 7	Valuable	= 12

discontinued for the most part in the later subjects, as they were distracting.

All patients were observed carefully during the interviews, and special attention was paid to the behavior of the patient during the days following.

Rorschach tests were obtained on 10 patients, including nine with schizophrenic reactions and one with a hysterical psychoneurosis. The schizophrenic reactions were mainly acute, mixed in subtype, and in various stages of recompensation (see Table 2). Three weeks or more before the first injection of methedrine, the first Rorschach test was given; the second was administered during either the first or second methedrine interview. The average time between the tests was 48 days, with only two patients having a re-test time of less than 21 days.

RESULTS

The Rorschach findings (summarized in Table 3) are similar to

Table 3. Average Changes in the Rorschach Results of 10 Patients
(Corrected for changes in total responses)

Increase	No Change	Decrease
Dd	F + %	W
Dd Sp	D	M
CF	F	Inanimate objects
FC		A%
Sum C		
Affective ratio		
Non-dysphoric shading		
Texture		
Anatomy and Sex		
Hd		
Ad		
Nature		

those of others in drug interviews,²¹ in that practically all patients demonstrated an increased productivity of dynamically rich material, which often could be effectively utilized. Frequently there was development of new insight, clarification and intensification of the transference, and the overcoming of impasses in psychotherapy. Accompanying the increased verbalization—at times amounting to a pressure of speech—there was ventilation and appropriate emotional discharge. The summary of Case 1 demonstrates this result.

CASE 1

Patient 1, a 17-year-old high school girl, was admitted to the Payne Whitney Clinic after a serious attempt at suicide. Prominent in her history was a three-year period of increasing difficulty in concentration, failure in many subjects at school, increasing depression and social withdrawal. She was preoccupied with the idea of moving to a distant city to be near her boy friend, with whom she had had sexual relations. She had long been in conflict with her lonely, isolated mother. From the day of admission, the patient was sullen, fearful, silent; often she was tearful in interviews but was unable to verbalize her feelings or participate in any way in psychotherapy.

Five weeks after admission, methedrine, 20 mg., was injected intravenously. During the interview, she wept uncontrollably, occasionally screamed angrily her own statement of her problems, but was able to relate much anamnestic material with appropriate affect. She spoke for the first time of the petty quarreling and bickering that took place constantly between her parents, of her inability to escape, of her conflict with her older sister, of a previous suicide attempt, of her envy and hatred for men, of her feeling that the only way to be close to them was by submitting sexually, which she disliked. She spoke of the harsh restrictions which had been forced upon her; she had not been able to avoid an intolerable dependency.

In a subsequent methedrine interview she spoke more of her sexual experiences, her desire to become pregnant so that she would have something of her own to love and be loved by. The patient concluded that all these plans had been ruined; she felt completely alone in her unhappiness. It was felt that methedrine interviews allowed this patient freedom to express these feelings, besides providing important new information.

In the authors' results, they were not able to demonstrate consistent changes in mood. A third of the group seemed more euphoric, a third more depressed. In some of the latter instances, the increase seemed correlated with temporary lowering of other defenses, with a consequently more realistic appreciation by the patient of his illness. Similarly, anxiety seemed diminished in a third of the group, increased in a half. Again, it was the writers' feeling that the patients seemed temporarily more capable of experiencing and tolerating conscious anxiety. In one patient, however, anxiety reached panic proportions, constituting a real danger.

Case 2

Patient 2, a 59-year-old man, a schoolteacher, was admitted to the hospital after two years of psychoanalytic treatment. He complained of a fluctuating depression over at least 30 years. He was a mild-looking man

who spoke in a slow, whining, monotonous way of being an "infant," of jealousy of his wife, son, and the other patients, of being more ill than anyone else, of not receiving adequate care. Perfectly blandly, he discussed recurring thoughts, alien to his personality, of destruction and murder. After receiving 20 mg. of methedrine intravenously, he excitedly accused the therapist of having changed him in some dreadful way, of persecuting him. He "understood" for the first time that the doctors intended to destroy him. More and more agitated, he screamed his intention to murder the therapist, grappling with him, then begging him to flee.

With difficulty, he was subdued. Weeping later, he thanked the therapist for not allowing him to become a murderer; he felt relieved, normal; for 12 hours he was talkative and euphoric, dramatically surprised that he could feel so much better. In a second methedrine interview, again with 20 mg., hostility again erupted, but with much less force. During this interview, the patient confessed his homosexual fantasies about the therapist, and revealed—for the first time to another person—lifelong, florid, polymorphously perverse fantasies.

The writers were very interested in the fact that two-thirds of their patients demonstrated more appropriate affect or less dissociation of affect under methedrine. Often, schizophrenic patients commented on this in very positive terms.

Case 3

Patient 3, a secretary of 24, was brought to the hospital in a catatonic stupor. In the hospital, she improved and began to talk, slowly and with effort, about her inability to feel and about multiple delusional ideas. After 20 mg. of methedrine intravenously, she began to weep, exclaiming, "I can feel again—I have my feelings back!" During the interview, she poured out material about her longstanding conflicts with her parents. She seemed much more appropriate and hopeful, although she maintained, in a tentative and questioning way, the truth of her delusions. Even after the effects of the drug had worn off, hours later, she was impressed at this proof that her feelings could be restored.

Rapport with the therapist improved, and over the following months the patient worked well and successfully in therapy. A second injection of 30 mg. produced much the same results, with the addition that the patient brought forth important material relating to the body image and to sexuality.

The writers could not predict, in this small series, whether an individual patient would demonstrate more or less dissociation of affect and content with drug administration.

True abreaction was not found with regularity; abreaction was

judged to have occurred in one-third of the group. Nevertheless, in several patients it was dramatic.

Case 4

Patient 4 was a 40-year-old advertising executive. He had had several depressions, interspersed with periods of euphoria, following his service in the navy during World War II. After three months of passive, intellectual, detail-weighted discussions, he had begun to improve in mood. However, it was felt that there was a poor therapeutic relationship. After he had received 30 mg. of methedrine, he attempted the same intellectual control, but seemingly in spite of himself, he kept returning to his service years, which he had never before discussed. Experiencing more and more tension as he talked, he finally spoke excitedly of a rescue operation he had directed, in which he had felt himself responsible for the death of the group leader. He abreacted strongly, and with relief.

This abreaction provided important leads regarding attitudes toward his brother and father, sexual identifications, and other dynamic problems. The patient felt himself "in therapy" for the first time; he was able to discuss transference feelings, to relate his fantasies and tell his needs affectively. Over the next few weeks, however, the clinical picture became one of a hypomanic excitement, with interview material dealing primarily with hostility toward his mother. It is not known whether methedrine played a role in this manic-depressive shift, although the production of material prematurely may have had something to do with it.

It should be mentioned that the premature pouring forth of sensitive confessions at a point before a therapeutic relationship is firmly established may constitute a hazard and a threat in later therapy, particularly in guarded, suspicious individuals.

Case 5

Patient 5, a 32-year-old woman admitted because of alcoholism, anxiety, phobic symptoms, and loneliness, was thought to have pseudoneurotic schizophrenia. The outstanding feature of her personality was the successful use of a rigid organization in the face of serious, disorganizing internal forces. After 30 mg. of methedrine, she became tired and sleepy; she spoke tearfully of a number of problems; but little new material was brought out. There was only slight relaxation of the control and guardedness that had featured her regular therapy. However, during the following three days, the patient was much more anxious, was suspicious of a woman she feared to be homosexual, was preoccupied with fantasies of doctors and nurses having sexual lives—fantasies which disgusted and frightened her.

This material provided an impetus to therapy for a time. However, two months later, an impasse developed, and another methedrine interview was suggested. Without explanation, and resisting arguments, the patient signed out of the hospital. Later it was learned that she had been preoccupied by a secret love affair which she could not bring herself to discuss. Fearful that methedrine would force her to talk about the affair, she had been unable to face either accepting or refusing another methedrine interview.

The effects of intravenous methedrine disappeared in most patients within one or two days. In some, however, as in this last patient, they lasted longer. In this connection, there may be some hazards in using the drug on an out-patient basis.

Most of the writers' patients seemed less guarded in speech with methedrine. No consistent specific changes in suspiciousness, fear, or resentment could be demonstrated. Nor were specific defense mechanisms such as projection, compulsiveness, and denial, uniformly affected. In more than a third of the group, an increased use of conversion mechanisms, and an increased willingness to talk in bodily terms were noticed. All patients were anorexic for 24 hours; most required sedation on the night following an interview.

Methedrine is very helpful in bringing forth new material. However, it failed to do so in more than a fourth of the group.

Case 6

Patient 6, a 22-year-old author, developed an acute illness with catatonic stupor alternating with excitement. With 20 and 40 mg. of methedrine intravenously, he remained mute; all symptoms, including grimacing and posturing, seemed more severe. Much later, vastly improved, he had no memory of the methedrine "interviews."

Case 7

Patient 7, a housewife, aged 40, had many neurotic symptoms. She had made great progress in psychotherapy, but 20 mg. of methedrine produced no reaction.

It seemed to the writers that at least half of their patients developed some new insight. This was occasionally dramatic, but not usually so. Half the patients seemed to have a stronger rapport in therapy after the interviews. In many, important and hitherto undiscussed transference material could be explored.

Case 8

Patient 8, a housewife of 42, was admitted with a severe, recurrent depression of 13 years in duration. Four courses of psychotherapy, the last psychoanalytic, intensive and lasting six months, had little effect on the patient's fears of harming or killing her husband, mother and children. Two courses of electric convulsive treatments had produced little more than transitory relief of the depression. Three months of in-patient psychotherapy produced a minimal response, although she did recognize her manipulativeness, her need to gain control over others by making them feel guilty, and the existence of varied sexual problems. In an interview in which 30 mg. of methedrine was given intravenously, she realized for the first time her repressed hostility toward important people in her life; she felt they had limited her freedom, had demanded perfection, had forced her failures in competition. She saw that she really wanted to kill her tormentors and kill all competitors; only thus could she gain perfection. She saw her ambivalence toward others and toward herself.

In impressive contrast to earlier interviews, her affect was appropriate; she was alert, spontaneous and actively engaged in trying to determine her true feelings. Over the following two days, her depression lifted as she accepted for the first time her own responsibility for her life, and her unrelenting attempts to seek a "magic helper" who would care for her totally. In the next two months, she was able to work with her family in a realistic way, expressing appropriate anger and assuming normal independence of action for the first time. She was discharged with a new self-confidence in her ability to handle any return of symptoms, which had by then completely disappeared.

In general, the writers' results with schizophrenic patients demonstrate either an increase (or at least increased communicability) or a decrease of symptomatology in about equal proportions. In the case of pseudoneurotic schizophrenic patients and psychoneurotic patients, there was more often a change in the direction of normality. In patients with strong paranoid trends, these trends were verbalized more freely. Depressed patients became more accessible, less retarded. Some of the more rigidly organized psychoneurotic patients showed little reaction to the drug, beyond a marked increase of tension.

Because of the small size of the Rorschach series (10 patients) a detailed statistical analysis of the results of methedrine administration would possess no reliability. Nevertheless, general observations and certain definite trends were recorded and may be reported:

1. Response productivity (T.R.) increased an average of 15 per cent or six responses to the record. However, the range extended from a decrease under methedrine of 21 responses in the hysterical patient, through no change in four patients, to an increase in the remaining five of from four to 33 responses.

2. The average initial response time decreased by 6.5 seconds, amounting to a 30 per cent reduction, with some decrease in every record. This seems to be more than would be expected on the basis of re-testing alone.

3. A tendency toward the changes summarized in Table 3 could not be accounted for by the increase in total responses alone.

Interpretively, a definite change in perception was noted. The increased responsiveness to small details at the expense of wholes indicates increased awareness of the less obvious clues and cues in the environment, with concomitant decrease in the use of abstractions and generalizations. Often associated with this feature, is a diminution of intellectualization and rationalization, as noted in the clinical analysis.

In experience type, eight of the 10 subjects showed a definite shift toward a more extratensive balance. This shift would indicate an increased emotional responsiveness, seen mainly to be egocentric and immature in expression. The absolute increase in color responses also suggests an increase in emotional responsiveness and expression. Fantasy, which with methedrine is more easily communicated directly by verbal and psychomotor behavior to the interviewer, appears to be projected less in the Rorschach tests. By implication, empathic ability is also diminished; this could be associated with an increase in anxiety, as indicated in many records by increases in shading and texture responses; as well as with a decreased need for, and incidence of, projection of personal fantasy onto the card.

Lessened need for defensiveness in the test situation and toward the environment is implied by the decreased use of responses in terms of inanimate objects.

The fact that reality testing and awareness of usual detail is unchanged, and that popular percepts (which were of average number in the pre-methedrine records) did not change, seems to indicate little effect of methedrine on ego-organization.

In the content, a marked increase in the elaboration of the responses was noted. The associative features spontaneously ob-

tained with fantasy productions often led to an increased understanding of the dynamics, either by way of the patient's being close to the percept, or through an increased personalization of the response. Associations of a second and third order often occurred. Occasionally noted was an association by the patient to his productions, usually with an abstraction, regarding the symbolic meaning of a card as a whole: That is, "Father" card, "Mother" card, "Sex" card and so on. This was observed more frequently than in the pre-methedrine protocols.

Two particular areas of psychopathology were exaggerated in the content of the methedrine records. These were the presence of self-reference and personal-conflict involvement in the subject's responses to the blot stimulus, and the presence of a sexual and anatomical preoccupation, occasionally approaching an obsessional state, during the methedrine Rorschach. These observations paralleled those made clinically.

DISCUSSION

The writers' results agree with other studies, in that they show methedrine to be of value diagnostically and therapeutically. Diagnostically, the drug seems helpful because it produces material which may have been previously inaccessible. Clinically, the writers agree with Pennes³ that methedrine may produce either an intensification or a reduction of psychopathology. There is no evidence that methedrine has any primary or consistent effects on psychopathological mechanisms such as resentment, suspiciousness, or paranoid projections; rather it seems to make certain feeling states and attitudes communicable.

Rorschach tests performed during the methedrine interviews were valuable because they confirmed previously suspected psychopathology—often only hinted or suggested in earlier Rorschachs or in clinical material. This exaggeration of trends, particularly of a very personal anatomical or sexual nature, was in keeping with the clinical observations. There was an increase of productivity and of emotionally charged responses, often of an ego-centric nature; there was increased ability to relate, express, communicate and feel inwardly, the more central and focal difficulties of the illness itself. The Rorschach tests did not demonstrate basic changes in ego functioning or in the use of specific defense mechanisms.

Methedrine is a valuable psychotherapeutic tool, a tool that has, like others, advantages and disadvantages. The writers would emphasize their belief that if it is to be considered therapeutic, it must be considered within the context of psychotherapy. If there are reasons to be cautious in regard to rapidly acquiring dynamic material, one should be hesitant to use the drug. If a patient has paranoid defenses tenuously controlled, one should be careful not to intensify these defenses by the use of methedrine prematurely, at least outside a hospital.

If a patient regards the use of a drug as an assaultive tearing of material from him, he may panic at the thought of having no inviolate areas of secrecy. If a patient requires the defense of dissociation for certain murderous or sexual feelings, any therapist should be careful not to remove that defense suddenly. If these disadvantages are to be obviated, the patient must be therapeutically ready to share the content of pathological dynamisms. If he is not, the degree of anxiety may reach panic proportions and the use of methedrine would be disruptive to psychotherapy and contraindicated.

With regard to these, and other examples that could have been given, the writers do not wish to carry cautions too far. No patient in their group showed more than a very temporary increase in disorganization. In most, there seemed to be an increased ability to tolerate and affectively share the illness. With hospital controls, coupled with intensive therapy, there was no patient whose anxiety could not be dealt with constructively.

The writers think the advantages of methedrine interviews are obtained only in the setting of an intensive dynamic psychotherapy. Use of methedrine interviews outside of this context, as in single interviews or to shorten proposed "brief psychotherapy," could produce much confusion for the patient and might be destructive to any future therapeutic management.

There is much interesting work to be done with this and other drugs, such as the chemically similar mescaline and LSD-25. In this area of study, one may speculate that methedrine, like the others, influences rather directly the inner perception and integration of emotion.

SUMMARY

Methedrine was administered intravenously in 20 to 40 mg. doses to 21 hospitalized patients in intensive psychotherapy. In-

interviews using this drug were found to be of value both in diagnosis and in psychotherapy. It was found that methedrine does not predictably produce changes in psychopathology, but may exaggerate previously suspected features. Methedrine does seem to increase verbal facility and the need for communication of dynamically important material in most patients. Most patients demonstrated a temporarily increased ability to tolerate consciously the anxiety and unhappiness of the illness itself, and transference was usually both increased and clarified. In some patients productiveness and the need for communication did not reach the maximum until six to eight hours after methedrine was injected.

Rorschach studies conducted with 10 patients before and during methedrine interviews substantiate the increase in emotional responsiveness noted clinically, and are valuable in confirming psychopathology and in revealing further psychodynamic factors.

There are contraindications to the use of methedrine, as well as certain dangers. However, if the interviews are integrated with the total psychotherapeutic effort, they offer distinct and appreciable advantages.

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NEUROLOGICAL SURGERY IN STATE MENTAL HOSPITALS*

BY JUAN NEGRIN, JR., M.D.

Neurological surgery in state mental hospitals is often understood to mean operations upon the brain hemispheres for treatment of mental disorders of so-called functional origin. The different techniques used are grouped under the term "psychosurgery."¹ It is intended in this paper to emphasize that psychosurgery is only a part of the neurological surgery performed in a state hospital. Rather than present cumbersome statistics and explanations, some recent experiences will be singled out, with pertinent comments which may clarify our views on the subject.

Case 1

J.J.R., a 55-year-old man, four years after his admission to Kings Park (N.Y.) State Hospital with a diagnosis of dementia praecox, hebephrenic, developed a right trigeminal neuralgia of the second and third division. After he failed to respond to conservative medication, he underwent a retrogasserian section of the second and third division of the right trigeminal nerve, resulting in relief of his symptoms.

Patients like this one call attention to the use of elective neurosurgical procedures in state mental hospitals, and such cases may serve to emphasize that operations for pain, as well as other elective neurosurgical methods to correct neurological disorders, like operations for dystonia, dyskinesia and parkinsonism are procedures one should be ready to handle. There are other elective standard neurosurgical techniques that can be of extreme interest for the study of neuro-endocrine factors in mental syndromes, such as cases with malignancy, in which the removal of the pituitary gland is indicated for the control of carcinomatosis.

Case 2

N.S. A 46-year old woman from Scotland developed a depression after her father's death. Within two months, she complained of constant generalized and suboccipital headaches. Later a detailed neuropsychiatric study, including electro-encephalograms and psychological tests, showed no evidence of organic disease. As her neuropsychiatric complaints increased, she was admitted to Kings Park State Hospital; and at that time she was found to have a Parkinson syndrome involving mainly the right hand and arm. Within a few days she had a right hemiplegia of gradual onset,

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with disappearance of involuntary movements. The spinal fluid contained 112 mg. of protein. An electro-encephalogram showed diffuse abnormal electrical activity, with concentration of higher and slower than normal frequencies over the left frontoparietal region.

The patient's general condition deteriorated, she became stuporous and developed bilateral choked discs. A ventriculogram done five months after the onset of her illness revealed the presence of a corpus callosum mass extending to both sides of the midline, more to the left than the right, displacing laterally the most anterior aspect of both lateral ventricles. A left anterolateral flap extending about three inches across the midline was turned. The anterior aspect of the corpus callosum had been invaded by an amorphous infiltrating mass which was partially removed. Through a cortical incision of the left frontal lobe the subcortical extension of the tumor mass was approached and a partial frontal lobe amputation was done. The microscopic diagnosis of the biopsy was that of a glioblastoma multiforme. On the ninth postoperative day, the patient became comatose and died.

This case demonstrates the well-known fact that a mental syndrome can be simulated many times by undetected brain tumor, and illustrates the necessity of treating brain tumors in a state hospital. It is not unusual to see patients who, after treatment with electric shock, develop neurological signs which call attention to the neoplastic origin of their mental syndromes and who, after surgery, if the tumors are susceptible to surgical removal, recover from their mental syndromes.

Case 3

R.E., a 38-year-old man, had a history of seizures, controlled with dilantin, and several episodes of acute alcoholism, with delirium tremens and occasional falls resulting in injuries of the head—one of them, in June 1955, requiring eight sutures. There was deterioration of his mental state; he was greatly disturbed and assertive, and was sent through Bellevue to Kings Park State Hospital on January 17, 1956. About a month after his admission, he had some difficulty in walking; his confused state increased; and he developed a right hemiparesis. A lumbar puncture showed nothing abnormal; but x-rays of the skull revealed a linear fracture in the midline extending from the midfrontal region toward the lambdoidal suture. The diagnosis at that time was chronic subdural hematoma. The patient became aphasic and hemiplegic and then semicomatose. An arteriogram showed a mass on the left hemisphere. On March 8, 1956, exploratory burr holes showed no evidence of a subdural hematoma. In view of the history of trauma and the linear fracture of the skull, a post-traumatic parenchymal hematoma was suspected and, accordingly, a left lateral flap

was turned. As the depth of the frontal lobe was explored, a large chronic brain abscess measuring 4x5x4 cm. was found. It was removed as a whole. The infecting organism was staphylococcus aureus, sensitive to sulfa drugs. The patient had an uneventful postoperative course and recovered rapidly from the pre-operative aphasia and right hemiplegia.

This patient shows, once more, the need for a flexible approach in doing neurosurgery in a state hospital so that any possible unexpected neurosurgical condition can be properly treated.

Case 4

A 14-year-old girl was considered to be a behavior and mental problem. After a complete neuropsychiatric study, the only abnormal finding was an EEG with a so-called petit mal pattern, which in this case represented abnormal electrical activity of the brain (bursts of bilaterally synchronous spikes and waves) from all head regions. There was clinical petit mal, as well as psychomotor attacks. She recovered with proper anti-convulsive medication.

It may be of interest to note that no single symptom is present in psychomotor attacks; and some patients may be paranoid, others hysterical, depressed or catatonic. Psychiatric symptoms may overshadow the actual etiology of the patient's illness to such a degree that diagnosis of schizophrenia or depression is made on a symptomatic basis. In the case just discussed, the psychomotor attack was represented by outbursts of tantrums, an aggressive behavior problem, and a personality disturbance considered to be of a psychotic nature, making the patient a candidate for a mental institution. The EEG gave the guiding information on the patient's condition, and anti-convulsive medication resulted in disappearance of the patient's mental symptoms.

Epilepsy in mental patients does not always respond to medication; and one ought to be ready to treat epilepsy coincidental with mental illness surgically if necessary. Surgery in epileptics, when done judiciously in order to relieve the convulsive as well as the mental syndrome, may result in gratifying postoperative results.

BRAIN SURGERY IN MENTAL ILLNESS

An important part of the neurosurgical activities in state institutions is psychosurgery in the sense that Egaz Moniz introduced the term, meaning operations upon the brain hemispheres for the treatment of mental illness. Such surgery has been done on all the lobes of the cerebral hemispheres, but the operations on the

frontal areas have been more widely used and evaluated in greater detail. Numerous recent attempts have been made to correlate functional localizations and frontal lobotomy procedures, notably by Fulton. Behavioral studies of lobotomy in animals and man have gone a long way toward improving our understanding of some of the functional anatomy of the cerebral cortex and have aided our attempts to place emotional mechanisms on a structural basis. Such study should give the psychiatrist and the neurosurgeon greater assurance and confidence in pursuing and perfecting psychosurgical techniques. In the opinion of Fulton^{2,3} and others, surgical intervention in psychosis has proved an efficacious tool and need not be used empirically. All the psychosurgical methods have the same physiopathologic bases. There is enough evidence to indicate that the many theoretically-outlined mechanisms are further complicated by the action on behavior, emotions and mental syndromes of other systems, such as those directly related to the "homeostasis" of Cannon, and perhaps also the reticular system.

Against the very appealing theories, is the fact that, frequently, after surgery, many psychotics still have hallucinations, paranoid ideas, and obsessive thinking; but somehow their charge and force is lost, or the resistance of the patient to its effect has increased.

SURGICAL TECHNIQUES

Frontal Leucotomy

In frontal leucotomy,⁴ the pathways of the white matter of the frontal lobe are severed. In this manner, not only the efferent and afferent projections of the dorsomedial and anterior nucleus of the thalamus are interrupted; but, also, other pathways connecting the frontal lobe with the basal ganglia, hypothalamus, and so on, are modified. Perhaps this is the reason for the appearance of memory defects, disorientation, diminution of initiative, slowness in response, mental sluggishness, lack of discipline, distractability, outbursts of temper, and childish behavior which sometimes follow extensive leucotomies.

To avoid these undesirable after-effects, *selective undercuttings*⁵ have been instituted to section only thalamic connections with certain portions of the frontal lobe cortex.

Leucotomies,⁶ selective or the more radical variations, are the most widely used psychosurgical methods and, therefore, are the

ones that are better evaluated. This procedure is done under local or general anesthesia. When local anesthesia is used, it is possible to interrupt the leucotomy at a stage when the patient begins to show a stuporous state, thereby avoiding a too radical or extensive section. The writer uses the so-called open method⁷ for his leucotomies.

Topectomy

Topectomy⁸ consists of the removal of a block of frontal lobe cortex which is smaller than the frontal cortex disconnected from the thalamus in the standard radical leucotomy. Originally, Pool recommended that Brodmann's areas 9 and 10 be removed. It was later found that the amount of brain removed was, to a certain degree, proportional to the therapeutic effect desired. In severe psychotics, 30 to 35 gm. are removed from each side; in compulsive states, 20 to 25 gm. are removed; and in cases of intractable pain, 15 to 20 gm. are extirpated. It is a more extensive and time-consuming surgical procedure than the leucotomy.

Instead of removing a block of the frontal lobe, one may isolate, totally or partially, a similar area to the one removed in standard topectomy, and leave the block connected to the rest of the surface of the brain by the pia arachnoid.

Thermocoagulation

Coagulation by introducing a needle through a burr hole into the inferior medial quadrant of each frontal lobe and passing a coagulating current to produce an area of necrosis has been recommended by Grantham.⁹ Like the originator and others, the writer has found this method useful, not only in mental illness, but also in problems of intractable pain.

Other surgical methods, such as *stereo-encephalotomies*,¹⁰ ought to have the benefit of further evaluation in the treatment of mental illness.

INDICATIONS

The mental patients for whom psychosurgery is indicated belong to three large groups: (1) schizophrenia, (2) the affective disorders and (3) the psychoneuroses. It is, therefore, of primary importance to make an exact psychiatric diagnosis. After diagnosis, the indicated medical treatment or therapies of choice should be intensively administered, including the use of psychoanalysis,

psychotherapy, electric shock therapy and electric stimulation or sleep therapy, and the combination of insulin therapy and electric therapy.

There are no general rules as to the proper time for surgical treatment, and each case must be judged individually. In most instances, when 12 to 18 months have elapsed without substantial, progressive improvement with systematic medical treatment, the patient undergoes psychosurgery. The specific indications for a particular psychosurgical technique are not yet clearly defined, and there is no correlation between any mental syndrome or symptom and a specific type of operation. Patients suffering from tension, obsessive compulsions or phobias are most benefited by brain surgery. Hallucinations and delusions are also influenced when accompanied by tension. Aggressive, destructive patients do better, in general, with the classic lobotomy than with topectomy or selective undercutting. Patients in apathetic, withdrawn states seldom benefit by the operation. From the point of view of personality deficit, the more extensive operations produce the more severe changes in schizophrenics.

In the final analysis, however, a restricted lobotomy by section or by thermocoagulation of the medial ventral quadrant, which interrupts projections from the orbital surface, as recommended by Grantham and others, is in general a good surgical approach and is designed to give the least intellectual deficit or side effects for severe schizophrenics, as well as for obsessive-compulsives.

RESULTS

The results from psychosurgery can be most dramatic, with a favorable change in the patient's clinical condition, but, unfortunately, they are unpredictable. To give an idea of the results following psychosurgery, the writer has reviewed a group of 50 patients on whom selective undercuttings, topectomies, thermocoagulations, and so on were done. These 50 cases were not selected. They were taken in succession and represent the last 50 done at Kings Park State Hospital. Of these, five (10 per cent) recovered, 29 (58 per cent) improved, and four of these can be considered "cured," since they were placed on convalescent care. Fifteen (32 per cent) patients showed no improvement. One of the 50 patients had had a severe blood dyscrasia, and surgery was decided on as a calculated risk, to improve his agitated state.

Before the brain could be touched, his condition under general anesthesia was such that the procedure had to be stopped. He died shortly after the operation.

Some of these patients had reserpine and thorazine before the psychosurgery. Others had to have these drugs after surgery to maintain the postoperative improvement. It appears from these observations that psychosurgery is beneficial when drug therapy fails and that drugs (thorazine and serpasil) may be useful after psychosurgery, even if they have had no effect by themselves prior to operation. The preliminary evidence leads one to believe that the synergic effect of so-called tranquilizing drugs in psychosurgery should be further evaluated. Since improvement has also been seen with psychosurgery after drugs have failed, it seems that the drugs so far available are no substitute for the organic therapies available, in this case psychosurgery, but that they should be considered as one more useful coadjutant therapeutic weapon.

INTRACRANIAL ELECTROTHERAPY

An electric current administered directly to the brain through intracranial electrodes, to treat mental illness and other conditions, has been in use for some time.¹¹ This technique was based on the hypothesis that an electric current might be more effective if received directly and selectively by specific brain areas than if it reached the brain in an assumed diffuse manner as in the standard methods of "external electrotherapy." The improvement of mental symptoms and syndromes with this procedure, when external electrotherapy failed, was strong evidence in favor of that hypothesis.

However, it was felt that it would be desirable to test the validity of the empirical principles on which this technique was based with more objective findings. Such an opportunity presented itself during the following situation: After a limited frontal leucotomy, intracranial electrodes were placed subpially in direct contact with the surface of the cortex above the undercut frontal lobe. Other electrodes were placed on both hemispheres and left in position after closure of the scalp. The intracranial electrodes were made of very fine tantalum wire, properly insulated. At different postoperative periods, electro-encephalograms were taken with the usual surface scalp electrodes in combination with the intracranial electrodes. A nonconvulsive electric current was ap-

plied to the external surface of the scalp placing one of the electrodes over the scalp, and just above the undercut part of the frontal lobe. EEG's taken before and after administration of such current showed no appreciable changes. However, when the same type of current was directed for the same length of time to the brain through intracranial electrodes placed subpially above the undercut cortex, a paroxysmal discharge was demonstrated on the EEG which was not accompanied by a clinical convulsion.

COMMENTS

The range of activities of neurosurgery at a state hospital is wide and varied. The problems are very similar to those in the neurosurgical services of any large general hospital. However, surgery for mental syndromes is used with greater frequency than in private neurosurgical practice. As in any other medical center, close co-operation with the other hospital departments is required. First and foremost, of course, is co-operation with the psychiatric staff for the pre-operative psychiatric diagnosis, selection, treatment and preparation of the patient as well as for the postoperative follow-up, rehabilitation and evaluation. In addition, a good clinical laboratory is necessary for all routine investigations, such as bacteriological studies, blood chemistries, endocrinology studies, tests for ion balance, potassium, sodium, and so on. A pathology laboratory with special facilities for neuropathology is necessary to study properly whatever specimens are obtained. The EEG department should be prepared, not only to do routine electro-encephalograms but also to use activating methods and participate in the operating room activities with any cortical or intracerebral recordings necessary. For this, in addition to the standard EEG machine, an oscilloscope unit with recording camera, stimulator, and so on, is necessary. In addition to a trained technician, a part-time consultant engineer should be on the available staff to take care of and service this equipment properly. The collaboration of a neurophysiologist is strongly recommended.

As in any other large hospital, the neurosurgical department is but one link in a chain of departments and units, and the strength of the whole depends on the integration of each one of the links. To run and supervise such a department, a full-time resident and a part-time attending surgeon are envisioned as the minimum staff. When a state hospital is connected with a medical school,

experimental laboratory research in neurosurgical, neuro-endocrinological, enzymatic, biochemical and neurophysiological projects should be encouraged to supplement and further clinical experiences.

So far, this is an outline of what one may call the intramural activities of neurosurgery in a state hospital. As there is an attempt to improve our neurosurgical activities within the frame of the state hospital, one should not forget that state institutions are also a part of the community. In most instances, state mental hospitals are located away from the large cities and the big medical centers, and are closer to the small community hospitals. It would be feasible, in the future, to make state hospital operating room facilities available to provide the specialized neurosurgical services lacking in these small community hospitals. Of course, such possible activities would have to be integrated—with state hospitals participating in community projects—and would have to wait, probably, in New York State, for permissive legislation.

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DIABETES INSIPIDUS AND SCHIZOPHRENIA*

A Case Report

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Co-existence of physical and emotional illness is becoming a topic of increasing interest to the psychosomatically-oriented psychiatrist. The study of a case in which both somatic and mental symptoms seem to spring from the same source and seem to follow the same dynamic pattern might be expected to contribute to the understanding of the vast, and hitherto only insufficiently explored, border area where psychiatry and internal medicine meet.

Schizophrenia is more and more recognized as a psychosomatic disease, despite the fact that physiological investigation by many competent scientists has so far yielded a confusing and contradictory pattern, and even though the therapeutic effects of somatic therapies such as electric shock treatment and insulin are poorly understood. In contrast, considerable progress has been made in the psychodynamic approach to this severe illness. This is ably discussed by Arieti in his recent monograph.¹

Diabetes insipidus has been explained satisfactorily as a disease involving the posterior lobe of the pituitary gland and the adjacent parts of the hypothalamus. In this area, there is a common meeting ground for the neural representation both of the emotions and of vitally important bodily functions. Several papers have appeared, reporting diencephalic pathology with diabetes insipidus and traumatic psychoses.² A search of the literature reveals only one report describing schizophrenia and diabetes insipidus in the same patient. Pighini and Fraulini³ describe such a case in a paper entitled: "Schizophrenia with Diabetes Insipidus, Fröhlich's Syndrome and Epilepsy," in a subject with tuberculous lesions of the hypothalamus and relative integrity of the pituitary body. In the patient to be discussed in this paper, no organic pathology explaining the symptom complex has been revealed so far. In Pighini's and Fraulini's case, the schizophrenic picture preceded the appearance of diabetes insipidus by about a year.

Before going into the case report, the author would call attention to an important article by Major,⁴ who considers schizo-

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phrenia a diencephalic syndrome. The question of psychogenesis or structural changes has been discussed by Alpers,⁵ who states that Freud himself believed in the ultimately organic basis of mental diseases. In the same monograph, Morgan⁶ describes cell changes in the hypothalamus in the major psychoses.

This brief review would not be complete without three examples taken from the German literature on the influence of the emotions on diuresis, reported in 1925 and 1926. Marx⁷ induced diuresis of a urine of lowered specific gravity under deep hypnosis. Heilig and Hoff⁸ reported that in 10 hypnotic subjects, pleasant feelings reduced excretion of water, chlorides and phosphates, while unpleasant feelings increased both diuresis and excretion of phosphates and chlorides. Hoff and Wermer⁹ were able, by hypnosis, to abolish the antidiuretic action of pitressin, while the response in the waking state was the expected antidiuretic one. This report will be helpful in the attempt to explain the reaction to pitressin in the present patient.

These interesting studies of emotional factors in diuresis apparently have not been continued or resumed by the same or other workers in more recent years; yet the approach might lead to better understanding of the perplexing intricacies of psychosomatic disease. Review of the literature makes it apparent that the combination of diabetes insipidus and schizophrenia is extremely rare.

CASE REPORT

The present patient is a fairly tall, well-built, white man, born on a small island in a fishing village. He is said to have wet the bed until the age of eight or nine. He has bitten his nails during most of his life. In his early teens, he walked in his sleep on one occasion. He remembers being locked up in a closet and screaming with temper, which he had to learn to control. He has talked in a low tone ever since and hates to be around anyone who "flies off the handle." He shared the bedroom with his parents at times until his early teens.

The mother is described as a domineering person who was very much concerned about her own well-being, and very little about the welfare of her husband and her four children. She frequently became angry, shouted, and screamed, and berated the rather weak and ineffectual father in front of the children. She would

also use physical complaints to discourage the family from asking for her help.

The patient witnessed the primal scene at the age of 10 or 11 and is still rather angry that the parents would do such a thing in front of him. Otherwise, he was not informed about sexual matters at all. The parents have not shared a bedroom for many years. It is the patient's impression that the mother withheld sexual favors from her husband because of her own frigidity, and to punish the husband for his ineffectiveness. The father has tried to make a marginal living, but has frequently failed in the attempt. At the present time, he will stand up to his wife only when he has been drinking. In standing up to her, he finds the silent support of his children.

The patient has three younger sisters, two of whom are married. He frequently says that, if they are happily adjusted in marriage, this cannot be attributed to the mother's indoctrination.

The patient did extremely well in a small high school and graduated with honors at 19. However, when he entered college, he was unable to tolerate the competition, and his grades dropped considerably for a time.

At the age of 20, a traumatic episode took place. The patient had been petting with one of the home-town girls, whom he liked a great deal. This seems to have been one of his earliest sexual involvements. He had no thoughts of marriage at the time. He says that neither immission nor ejaculation occurred. He was dismayed to find out from the girl that she was pregnant and that she considered him the father of the unborn child. A physician told him that this pregnancy, if due to him, was so by a one-to-a-million chance. The patient, who was brought up very strictly from a moral and religious viewpoint, could not accept the paternity charge, even though he had some guilt-feelings that, in some magic way, he could be responsible. The explanation for these feelings was that there might have been sperm on his penis—left there from a night dream—which had impregnated her. The patient believes he might have married the girl if an attempt had not been made to force him. He told her lawyer that she had been going out with other men, even though he was not entirely certain of it, and this squelched the proceedings against him. He always considered the girl to be very honest, and, therefore, believed that she would not knowingly lie about such a grave matter.

Shortly thereafter, still at the age of 20, he enlisted in the army; but because of his failure in college in the previous year—a failure due in part to the emotional upset of that period—he did not reach officers' candidate school. He was sent overseas following basic training and continued training in England.

During this time, at the age of 21, the patient noted the first signs of urinary frequency. This, apparently, was the reason that he was not sent into combat with his outfit, but worked in an office for nearly two and a half years. As he told the writer much later, he was stationed in a large city, was approached on two occasions by homosexuals, and once went to a house of prostitution where some oral practices were employed. The patient had no idea of what they meant and fled in disgust before anything could be done to him. He had gone there only to show his fellow-soldiers that he was like them, and to combat his fear of not being a man, which had become the more disturbing because of the homosexual approaches and his failure to enter combat. Throughout the entire period, he was greatly worried about his personal problems. At 22, he was hospitalized at a large army installation overseas, with complaints of urinary frequency, nocturia and occasional terminal dysuria. There was no urethral discharge. The bladder was found to be rather large. On the basis of cystometric studies, a diagnosis of nervous bladder was made. The fluid intake at that time was already fairly large. However, he remained on active duty for nearly two more years, and was then discharged on points. A left varicocele was noted in the physical examination at the time of separation from the service.

Shortly afterward, the patient was studied at a large university hospital, where the diagnosis of diabetes insipidus was made for the first time. The specific gravity of his urine was 1.000 to 1.003. The oral glucose tolerance test showed a flat curve with an abnormally low dip; the fasting blood sugar was 66 mg. per cent. One-half hour after ingestion of glucose, the blood sugar rose to 156 mg. per cent; after two hours it dipped to 76 mg. per cent, and after three and four hours to 52 mg. per cent. Both x-rays of the skull and psychiatric consultations showed nothing abnormal. The EEG showed diffuse and severe abnormality, without localizing signs. The intake and output of fluids was 10 to 11 liters in a 24-hour period. The diagnosis of diabetes insipidus was based on the patient's excellent response to pitressin tannate in peanut

oil, which reduced the 24-hour fluid intake and output to 2,000 cc. He reacted immediately to the introduction of sterile hypodermics, by an increase in the fluid level.

The patient re-entered college and did fairly well for a while, until the girl re-entered the picture. She had been married, but was separated from her husband at the time. She wanted him to marry her, but since she had one child by her husband and was pregnant with another, he did not feel that he could accept the responsibility, even if she were able to obtain a divorce.

During this period he developed a great deal of nausea and several "blackouts," the first at the age of 26. At about the same time he was observed in the college hospital because of suspicion of a kidney stone. This, however, could not be verified, and if a stone was present, it must have passed in his urine. The hospitalization occurred at a time when term examinations took place. It is noted that the blackout spells also interfered with his scholastic standing, but he managed to graduate with a bachelor's degree in education.

The patient was 27 years old when he first came to Baltimore Veterans Administration mental hygiene clinic for treatment. The internist thought then that the diabetes insipidus might have psychosomatic implications. However, the patient was interested only in a somatic outlook upon his condition and left after five therapeutic hours.

He returned for treatment with considerable anxiety less than a year later. He had suffered another mild blackout spell while taking a nurse to the movies. He attributed this to worries about the pitressin, the effects of which had shown signs of wearing off lately. Very shortly thereafter, he lost his clerical job because of his symptoms. His parents were concerned only with the loss of income and the discomfort the patient's condition caused them.

At this time, he informed the writer that the ampules of pitressin were ineffective, except those bearing a certain batch number. He said that he could predict, from the number, how many hours the medication would be effective. He engaged in considerable correspondence with a pharmaceutical firm, which tried to co-operate with him, even though such a phenomenon had never come to its attention before. To the writer, this seemed more and more like a delusional elaboration.

By this time he had also told "what had gone on" during his first three blackouts. At the time of the first spell, he was alone on the campus because everyone else had gone to a football game out of town. He had had no money and had had to stay behind. He had the delusion that he was Christ or the Creator, and that he was just standing there in his saddle shoes.

The second blackout was six months later, at the age of 26, when he had overslept and was unable to get breakfast. By that time his grades had slipped markedly, and he had failed a make-up quiz in political science. He faintly remembers—and probably was told—that he went into a mathematics class in the same classroom where his political science class was to begin an hour later. He was found in the classroom several hours after this. He was going through routine actions, but had not recognized a friend. He felt in retrospect that his failure to drink water had had something to do with his blackout.

The third blackout occurred during summer school. He had had to make up courses because of failing grades. During a class in criminology, the professor seemed to be a prosecutor, while the classmates seemed to act as a jury and somehow accused him of being the father of the illegitimate child.

In addition to this material, he told the writer he had difficulty in giving himself an injection of pitressin, even with an automatic injector. The procedure might take him several hours.

At this time, the blackout spells were considered by the writer to be due to a dissociative reaction occasioned by guilt feelings and fear of loss of dependency. The possibility of a more malignant dissociation, such as schizophrenia, was kept in mind because of the delusional content during the first and third blackouts. Organic factors, as shown by an abnormal EEG, were not entirely excluded.

For two or three months, the patient seemed to adjust a little better, and was without obvious psychotic symptoms. Then he suffered a fourth "spell" while visiting his alma mater, where he had gone to attend the graduation of a friend. He was conscious of a feeling of loneliness before the spell and, perhaps, also of some jealousy, because the friend had obtained a master's degree, while the patient himself had not been admitted to graduate studies on account of his scholastic record. During this spell, he was found in the room he had occupied during his student days. He

seemed to have forgotten that he had shaved and also was found to have two pairs of shorts on. A blood sugar of 41 mg. per cent was found, and glucose was given intravenously.

Following this, he was studied intensively at Veterans Administration Hospital, Fort Howard, Md. Electro-encephalographic studies, both when he was awake and when he was asleep, showed no evidence of damage to the accessible cortex and were entirely normal. The glucose tolerance curve was then essentially normal, perhaps slightly low. He still showed a fairly good response to pitressin; and, without it, his output was anywhere from 14,000 to 16,000 cc. a day. The sodium chloride concentration test was consistent with diabetes insipidus. All other studies were normal, and the patient was advised to continue treatment at the mental hygiene clinic. The psychiatric hospital consultant advanced the interesting idea that the patient's tremendous thirst could perhaps be explained by his unconscious search for his mother's milk.

The patient did not report to the mental hygiene clinic until about a month later. He was aware that no additional findings had been made, and he did not want to continue psychotherapy. He arranged with one of the clinic nurses to give him the pitressin injection. He was given an appointment for psychological tests, but managed to avoid keeping it.

Shortly thereafter, he was readmitted to Fort Howard Hospital, where his resistance to pitressin was to be investigated by a trial of ACTH. Before this could be started, the patient was found to react in a psychotic manner to a question he had heard on the radio. He was grimacing, perspiring profusely and staring suspiciously. His blood sugar at the time was 95 mg. per cent. He calmed down after 50 per cent glucose was given intravenously. During the night, he became very agitated, made several attempts at aggression toward the nurses, and tried to put his head into the lap of an attendant. He related his blackouts to Biblical times, was confused, irrelevant, disorganized, and suspicious concerning people in the hospital. Two psychiatric consultants recommended his transfer to Veterans Administration Hospital, Perry Point, Md., with the possible diagnosis of schizophrenic reaction with paranoid features. He remained at that hospital from December 30, 1950 to March 31, 1951.

When he came home he found that the family were absent on a trip. Even though he had been informed of this in advance, he

suffered another blackout spell within an hour. He was so agitated that his parents had him arrested when they returned. However, two police surgeons declared that the patient did not require commitment.

This left the parents in a dilemma. The patient returned to the clinic for another two months. He disputed the parents' claim that he had walked restlessly about the house, asking the policemen to pardon him. He recalled, however, that, shortly before the blackout at Fort Howard Hospital, he had signed a petition against the rise of the price of haircuts at the hospital. The nurse at the hospital looked to him like the girl who gave him trouble with the illegitimate baby. He made the following statement: "Something drastic must have happened during that night. Maybe I masturbated during my blackout. I may have seen sperm on the glass that I used to put my urine in. I seemed to want to keep them [the doctors, nurses and other patients] laughing so they would not be angry."

He was placed on a high protein diet, but was worried because he did not have the funds to pay for this, as he was unemployed. The relationship with his mother deteriorated even further, but the patient felt that he could not leave home because home provided his only facility for cooking and keeping his diet. One of his married sisters offered to cook his meals for him, but the patient did not accept the offer, because it would have interfered in his power-struggle with his mother. His fears of additional blackouts and of being caught without pitressin became greater and greater. He mulled over thoughts about the girl. He also worried about doing a lot of "crazy talking" during his "spells." During this time, the mother never set a place for him at the table and frequently hid food from him. She continued her efforts to get him out of the house. Even after his compensation had been considerably increased, she continued to call him lazy and shameless. He developed nausea and vomiting again; but, since he had not reacted in this fashion to pitressin for many months, this was thought to be caused by emotional involvement.

At this time, the picture was temporarily confused by the suspicion that he had a mediastinal tumor. On June 22, 1951, the patient, 29 years old at the time, was fluoroscoped at the Veterans Administration regional office, and no evidence of mediastinal pathology was found. During that night, he slipped into another

"blackout" spell. He began to act restlessly; he knelt on the floor and measured imaginary distances, while beads of perspiration were standing on his forehead. He recognized the psychiatrist, who came to his home, but he was unable to speak. He resisted entering the ambulance until he was persuaded by the writer to do so.

At Perry Point Hospital, hypoglycemia was ruled out. The EEG was considered mildly abnormal, but no organic features were noted. A follow-up electro-encephalogram, six weeks later, was normal. Psychological testing suggested a schizophrenia-like reaction with depressive features. The hospital psychiatrist considered him preoccupied and withdrawn, and stated that the patient was verbalizing ideas of reference and delusions of persecution, together with showing a flattening of affect and inappropriate smiling. Shortly thereafter, he developed a near-panic state with restlessness, agitation and depression, which caused his transfer to the acute disturbed service. During November and December 1951, he had a course of 15 electric shocks, which resulted in gradual, but considerable, and significant, improvement. From then on until the time of this writing, almost five years later, there have been no more blackout spells, and he has no longer needed pitressin, even though his water intake has seemed almost as high as usual. There has been no more evidence of delusions or hallucinations.

During the six months following electric shock therapy, gradual improvement from his withdrawal became apparent. He participated in group therapy, began working on the ward and received week-end passes. His family expressed pleasure about his improvement. He regressed slightly for a time when the question of return to the family was first broached. Toward the end of his hospital stay, the x-ray of his chest was found to be negative. The specific gravity of his urine ranged from 1.000 to 1.007. The 24-hour specimen ranged from 8,000 to 13,000 cc. The glucose tolerance test showed a fasting blood sugar of 78 mg. per cent, which rose to 98 mg. per cent after one hour, dipped to 52 mg. per cent after two hours, and rose slightly, to 60 mg. per cent, after three hours. His physical condition has remained essentially unchanged, with the only positive findings those of diabetes insipidus. Since the hospitalization, there has been no evidence of psychosis except for some flattening of affect. The trial visit was handled by the

social worker. This was stormy at first because of the parents' excessive hostility. They finally succeeded in forcing the patient out of the house, but he withstood the test surprisingly well by getting himself a room, while retaining his room in his parents' apartment and going there frequently for additional food and to pick up his mail.

In July 1953, he asked the social worker for an interview with the psychiatrist. He then gave the first inkling that he was sexually impotent. He continued interviews with the social worker until the end of his trial visit—a year after his leaving Perry Point—and then transferred for further psychotherapy to the psychiatrist. It was felt that the approach by a friendly maternal figure, as reflected by the social worker, was at least in part responsible for the continued improvement in his psychiatric condition. His polyuria became marked only when he visited his parents. During this time, he found a clerical job, which he managed to hold for two and one-half years.

In psychotherapy, he discussed in detail his fear of increasing impotence—which he had noted immediately upon cessation of EST—and his worry over premature graying of hair. The graying could not be verified by objective observation, certainly not to the degree claimed. His complaints indicated that he feared he might be decaying and might land again in the back ward of a hospital, where the patients masturbated frequently. Gradually and despite some evasiveness on his part, it came out that he was again meeting frequently the mother of the illegitimate child. The girl's husband had then become a chronic mental patient. This conflicted to a marked degree with the patient's moral and religious upbringing, and yet the girl's home provided some of the affection and love which he did not receive from his own parents.

Recent psychological studies (Rorschach and TAT) show a much improved orientation toward reality and interaction with other people, as compared to the tests done six years previously. He tends to be less constricted, yet still shows a severe disturbance in thinking processes. He seems more concerned than formerly with heterosexual relationships, and expresses considerable ambivalence over the possibility of rejecting, or being rejected by, women. These changes in attitude toward interpersonal relationships suggest improvement and perhaps also reflect his status in psychotherapy, where he is hesitantly beginning to face, and work

through, his problems. His anxiety is still related to his attempts to repress his hostile feelings, to his frustrated dependency needs, and to his confusion in the sexual role. Psychotherapy is expected to be an extended process, with moderate success to be anticipated.

This opinion by the psychologist seems to be borne out by the gradual progress in psychotherapy, which is focused upon the interpersonal relationship between the therapist and the patient. This approach is beginning to bear fruit. However, at the time of writing, the difficult situation with the girl still prevails. There is no present possibility that she may get a divorce; and even if she did (as the patient himself says), this would not solve his difficulties.

COMMENT

This patient, under emotional stress, developed signs and symptoms of diabetes insipidus, and several years later, under continuing emotional pressure, showed a rather typical picture of catatonic schizophrenia. He responded poorly to therapy for both illnesses until electric shock treatment, a powerful stimulant to the vegetative nervous system,¹⁰ was administered. After a course of 15 treatments, he gradually improved, his schizophrenia became nonpsychotic, and there also was considerable amelioration of the distressing symptoms of diabetes insipidus.

In retrospect, one can see a family situation conducive to the development of schizophrenia—a domineering, rejecting mother and a weak father. Superimposed on this background is a traumatic episode at the age of 20, when he was accused, under rather peculiar circumstances, of responsibility for an illegitimate pregnancy. The patient consciously fought the paternity charge in good faith, but unconsciously developed tremendous guilt feelings, based upon his moral and strictly religious upbringing. This emotional trauma resulted in deterioration of his scholastic record and interfered with his military career. This was followed by three sexually compromising episodes very much at variance with his moral principles and all dealing with abnormal sex practices. These episodes increased his doubts about his sex identification. Shortly thereafter, the first symptoms of diabetes insipidus appeared.

Temporarily, the emotional pressure seemed compensated, but it was increased by the girl, by school and by his own family until it became overwhelming. There were three episodes of day-

dreaming, with bizarre and grandiose elements, all precipitated by feelings of being deserted or punished. During this period, the requirement for pitressin became much greater and assumed an almost delusional quality.

According to Hoff and Wermer⁹ it is quite possible to alter the pitressin effect under hypnosis. The same thing could easily happen when the emotional influence is exerted by the subject himself, when he is confronted with a breakthrough of threatening emotional material. His inability to administer the injections to himself and his eagerness to have the nurse give him the needle complete the emotional picture of the pre-psychotic stage.

The patient was hospitalized to reduce his pitressin resistance by use of ACTH. However, before it could be given, the first obviously psychotic reaction occurred, precipitated by something which was considered by some observers to be a homosexual panic, but which seems to the writer more of an attempt to cope with the threat to his dependency wishes. Ambivalent feelings about the girl and continued rejection by the family seem to have brought about a prolonged psychotic episode, which required hospitalization for 18 months.

One can only speculate about why electric shock brought about simultaneous amelioration of diabetes insipidus and schizophrenia, together with some improvement in glucose tolerance. It is quite possible that the improvement of both illnesses is connected with altered functioning of the vegetative nervous system, caused by the electric shock. This alteration has been postulated as a mechanism in improvement by Funkenstein,¹¹ who feels that the changes of the psychological picture bring about a change in the physiological reaction as well—and vice versa. According to him, psychologic and physiologic changes are two aspects of the reaction to stress.

The development of impotence following EST is also of interest. This phenomenon has been reported by Michael,¹² but it usually disappears after a time. The perpetuation and gradual increase in severity of this complaint, as reported by the patient, was treated by the therapist as a psychological, rather than a physiological, reaction. It may be recalled that this complaint was associated with the patient's concern about decay and premature death, expressed by his fear of premature graying as well. The latter complaint of graying was very disproportionate to the patient's

actual appearance, which led the writer to doubt whether the impotence also was really as severe as the patient indicated. The therapist handled this by recognizing the patient's fear of deterioration, but by adding that, in most potency cases under his care, emotional factors seemed to be responsible.

Sexual potency and graying are both under the influence of the autonomic nervous system. It is certainly possible to assume that we are moving here in the border area where emotions and bodily changes overlap. The patient revealed, at a considerably later time, that his fear of impotence and premature graying (decay) was closely associated with concern about being sterile. This concern was interpreted partly as punishment for his sins, and partly as a wish to resume his forbidden sexual activities with impunity. The very real reason for this wish was gradually revealed; he was again consorting intimately with the girl who previously had been so "receptive" to a drop of much more "potent" fluid emanating from him. His present, supposedly sterile, ejaculate would be "harmless."

It is easy to explain the inexorable progression of symptoms in Pighini's and Fraulini's case³ in the light of marked postmortem pathological changes, which account for the physical symptoms and to some extent at least—judging from present knowledge—for the psychotic symptoms. In the present case, there is much less severe pathology, with response to EST and psychotherapy. If there are any anatomic changes at all, they must be slight and to a considerable extent reversible. The best available interpretation of the complex symptomatology in this case lies in the suggestions, made by German investigators,^{7,9} that emotional changes do indeed influence diuresis. There is good reason for a hypothesis that when emotional stimulation of diencephalic centers is continued for years, it plays an important part in the development of symptoms. This view is supported by the observation that in the present patient, pitressin at first exerted its well-known therapeutic function; then became more and more ineffective while the psychiatric symptoms progressed; and finally became part of the delusional picture until a remission of the psychosis was obtained, when pitressin was no longer necessary. This would be in line with Funkenstein's postulate.¹¹

The facts that ACTH may cause psychoses and that the new ataraxic drugs may ameliorate psychotic symptoms can also be explained by their influence upon diencephalic centers. The patient's transient EEG changes are difficult to explain. The more the somatic and psychological symptoms were in remission, the more normal the tracings seemed to be. There have been no conclusive reports in the literature regarding abnormal EEG tracings in schizophrenics. One can only speculate as to whether the transient changes observed here had something to do with reversible cerebral hydration. It cannot be considered coincidental that the first schizophrenic manifestations occurred in the form of "black-outs," which could have been "psychomotor equivalents" with delusional content and were at first so diagnosed.

From a symbolic standpoint, one could say that the patient developed his polyuria to gratify his exhibitionistic needs and to show at the same time that his penis was after all not such a harmful organ, since it emitted such innocuous, "weak" fluid. Unquestionably, he is still a very confused person with grave doubts about his masculinity, sex identification, aggressiveness and dependency wishes. He is still caught in the almost impossible situation with the girl, and it shows no realistic possibility of solution. He has detached himself to the extent that he realizes that obtaining a divorce will be her responsibility; but if she really succeeded in doing so, he would most probably be thrown into an emotional turmoil again. He is leading a comparatively normal and effective life, but his adjustment remains tenuous, and continued therapeutic support is necessary. The patient has finally overcome some of his reservations about the psychiatrist and is continuing psychotherapy. He still remains somewhat withdrawn, vague and emotionally blunted.

CONCLUSIONS

The author wishes to state his conviction that no definite conclusions can be drawn from a single case report. It is interesting to note, however, that the same emotional sources seem to have affected the patient through two channels, the emotional-symbolic one, and the one through the vegetative nervous system. The two symptom formations remained closely intertwined throughout and seemed to act as defenses against a psychotic break.

The hypothesis that these physiological and psychological channels may be integrated in the diencephalic area finds some support in the literature cited. The influence of ACTH and the ataraxic drugs, the former bringing about psychosis in some cases, the latter bringing about remissions, can also be traced to this area of the brain.

In the case of schizophrenia followed by the development of diabetes insipidus and epilepsy, reported by Pighini and Fraulini,³ they were able to demonstrate postmortem pathological changes in the diencephalic area, which was invaded by tubercles. There were transient EEG abnormalities in the present patient, which returned to normal and which may perhaps be explained on the basis of reversible cerebral hydration. Electric shock and psychotherapy both ameliorated the physiological and emotional changes to a considerable extent. Thus, it is quite possible to assume that all symptoms in this patient have remained functional in character. The roles of pitressin and electric shock therapy lend further support to the hypothesis that diencephalic and pituitary dysfunction is of some etiologic significance in this case, and that the diencephalic area may be of considerable importance in the elaboration of both somatic and psychological symptoms in schizophrenia, diabetes insipidus and cerebral dysrhythmia.

SUMMARY

A case of diabetes insipidus with schizophrenia has been compared with one found in the literature, and has been studied both from a physiodynamic and a psychodynamic viewpoint. The hypothesis is advanced that the symptoms found here may be due to unconscious elaboration of an emotional conflict, through physiological channels located in the hypothalamic area. The symbolic meaning of the symptomatology is discussed, as well as the roles of pitressin, ACTH and electric shock treatment. An attempt is made to explain the combined clinical picture as a vegetative psychosis mediated in the diencephalon. It may be of interest that both symbolic and organic interpretations are possible and that the integration of the two concepts has contributed to the understanding and handling of the patient. The opinion is expressed that the diencephalic area may be of considerable importance in

the elaboration of both somatic and psychological symptoms in psychosomatic disease.

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OBSERVATION OF A HYSTERICAL EPIDEMIC IN A HOSPITAL WARD*

Thoughts on the Dynamics of Mental Epidemics

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Schuler and Parenton¹ reported, in 1943, an epidemic of hysterical symptoms in a Louisiana high school for girls. In their paper, the authors remarked that they had been unable to find even a single publication, describing a similar epidemic, since the beginning of the century. They were all the more surprised because they had noticed that the first and second series of the Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, had listed, under the subject headings of choreatic, convulsive and hysterical epidemics, about 100 publications that had appeared in the second half of the nineteenth century.

Had there perhaps been an unusually keen interest in hysterical and other mental epidemics in the nineteenth century? Two books describing some of the mental epidemics of past ages were published then and seem to have attracted a wide public: Hecker's book² on the dancing manias of the Middle Ages, and Mackay's³ on what he called "extraordinary popular delusions and the madness of crowds." If there was such a fashionable interest in the subject at that time, it may have been partly responsible for the frequency with which hysterical epidemics were reported. But that could hardly have been the whole explanation.

Since the paper by Schuler and Parenton, the literature on hysterical epidemics has been enriched by only one further publication. Johnson⁴ described under the title, "The 'Phantom Anesthetist' of Mattoon," a short-lived epidemic of this kind in the small midwestern city of Mattoon, Ill., in 1944.

There have been one or two papers on an allied phenomenon: the endemic provocation of hysterical manifestations in small congregations which had assembled for that express purpose. Douglass⁵ described the hysterical events in a Negro community of a small backwoods town in the Mississippi delta during the religious services at "The Funeral of 'Sister President.'" Sargant⁶ gave an account of the hysterical symptoms which were deliberately fomented in the meetings of various religious sects in North Carolina.

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On the whole, it seems that there has been, not only a decline in the incidence of hysterical epidemics in this century, but also a waning of interest in these phenomena and even an occasional desire to argue some of them out of existence. For instance Backman,⁷ who is a professor of pharmacology, tried to prove in a very scholarly book on religious dances and dancing epidemics in the Middle Ages that it was ergot poisoning, and not hysteria, that had caused the epidemics.

The literature on other mental epidemics has not fared much better. Lip service is generally paid to their social significance, but few studies have been specially devoted to their detailed description and scientific analysis. Among exceptions—to mention some, at least—are the studies of the Detroit race riot of 1943, by Lee and Humphrey;⁸ of the invasion-from-Mars panic, by Cantor;⁹ and of a run-on-a-bank scare, by Vaught.¹⁰ The rise and fall of such mental epidemics as fashions, fads and crazes has received some attention, for example, by Flugel,¹¹ Richardson and Kroeber,¹² Bogardus,¹³ and Penrose.¹⁴

The writers have been able to find only two references to mental epidemics in hospital wards, both dealing with the spread of non-hysterical phenomena. Stengel and Mayer-Gross,¹⁵ who gave a detailed account of their observations in a ward of patients undergoing insulin-shock treatment, mentioned—almost *en passant*—the contagiousness of noisy behavior among patients in the pre-comatose stage of hypoglycemia. Stanton and Schwartz¹⁶ described a collective disturbance which lasted for three weeks in a ward of psychotic female patients. During that period the aggressive, noisy or demanding behavior of any patient would act like a “spark plug” and cause a disturbance in other patients. There was, however, no concerted action. “Each patient reacted in her own stereotyped way—the ordinary way in which she expressed her autistic needs. Nothing approaching a strike or a riot occurred.”

The mental epidemic which the present writers had the opportunity of observing in a hospital ward went beyond the mere propagation of disturbed emotions; it caused the appearance of hysterical symptoms in some patients who isolated themselves from others rather provocatively, by forming a secretive clique. The epidemic thus led to concerted actions and to a temporary division of the ward into two antagonistic factions.

THE EPIDEMIC

The epidemic occurred in an open hospital ward which accommodated 24 female patients who suffered mainly from neurotic and psychosomatic symptoms. Their average age was 30; their social and economic backgrounds varied widely.

Each patient was seen three to five times weekly in psychotherapeutic interviews which lasted from 30 to 50 minutes. The interviews were recorded, either during the sessions or immediately afterward—and as nearly as possible verbatim.

These records provided the bulk of the data when the task of reconstructing the course of the epidemic was undertaken. Another fruitful source of information was in the detailed weekly reports which the nursing staff routinely made on each patient.

In tracing back the course of the epidemic, the writers arrived finally at an event from which the whole chain of subsequent responses seemed to derive. In this report all the manifestations of the epidemic will be dated from the day (Day 1) of that event.

On Day 1, Anne came to her therapeutic session in a distressed frame of mind. Anne was 27 years old and unmarried. She was a doctor and suffered from psychosomatic symptoms. In the ward, she occupied a position of high prestige because of her social and professional standing. Anne had had a very disturbed night. She told her doctor: "Last night I went through the reality of a horrible nightmare. It probably lasted only a few minutes, but it seemed a lifetime while it went on. It was a terrible state to be in." She had dreamed that she was pregnant, that her whole family had watched her in labor and that her delivery had been assisted by an aunt and a sister who were both doctors. On waking up in the morning, she had found that she was menstruating for the first time in seven months.

Anne's nightmare was soon generally known in the ward. It seemed to stir emotions in several patients who, in the following week, spoke of birth fantasies during their therapeutic sessions. At the same time it was noticed that the atmosphere of the ward was becoming uneasy and tense. There were reports that the ward had become fascinated by the topics of sex, birth and death. The discussions of the patients centered around these themes, and obviously aggravated the neurotic anxieties in many.

On Day 8, a young patient could stand it no longer. "The girls talk about nothing else but babies and having them. It's absolutely

disgusting," she said, and pleaded with her doctor to move her to another ward.

On Day 10, Betty, who was to emerge as the leading spirit in the epidemic of hysterical symptoms, showed the first signs of having been unduly affected by the general agitation on the ward. She was 38, married, and had one child. She suffered from manic-depressive mood swings and had been under treatment in the ward longer than any of the other patients. When not too depressed, she was a sociable person and popular with almost everybody. At this particular time, she was in an overactive hypomanic state. Nothing of interest on the ward had escaped her vigilance. On Day 10 she made the peculiar remark to her therapist that she had always been fascinated by the myth of Lilith, the primordial mother—ever since she had first read about her in Shaw's *Back to Methuselah*. She added, in a playful bantering way, that she felt as though she herself were Lilith now.

Betty's mind seems to have been progressively preoccupied at that time with ideas of birth. Four days later, she reported symptoms of morning sickness. Then—on Day 20—she lived through a hysterical experience of re-birth and birth.

After going to bed in the evening of Day 20, she suddenly felt strange bodily sensations. Describing this later to her doctor, she said that it had felt as if her body were acting quite automatically. It arched and bent, and she had no influence over it. The thought had struck her that these were the movements of a body that was being born. At last she felt that the body had finally emerged from the birth canal. She had sneezed and yawned. Then a feeling of exhaustion had come over her and she had fallen asleep.

Three hours later she awoke with abdominal pains. This is how she described it later: "The pains in my tummy became rhythmical. I pulled up my legs and the pains got really strong. I called to Cathy [a patient with whom she was very friendly], and she immediately recognized what was going on. The pains got really strong after about 10 minutes, and I thought I would wet the bed. Cathy put a groundsheet under me. I urinated and things stopped. Cathy gave me a cup of tea but I couldn't hold it. Then I felt a pushing in my arm like the injection they had given me when I had my baby."

Presently the pains returned. Betty felt as if "something had slipped." She groped around in the bed for the baby. Then the

pains started again. It was as though the afterbirth were coming away, she thought. There was no more pain after this. Betty felt happy and well. She remarked to the night nurse on her round: "Tell the doctor that, last night, I was born and this morning I gave birth."

On Day 22, Cathy went through a similar hysterical experience of parturition. She was 32 years old, married and had one child. This was her report of the hysterical experience: "I felt something pushing down—it was pushing down on my bladder and the back passage—but I couldn't pass water . . . Then I had a sudden feeling of a forceps, just like when my baby was born, but I didn't want any one to help me. I felt a sort of a flop, a terrific sort of a rush, and my tummy then felt empty." Like Betty, she also felt as though, a little later, an afterbirth were being passed.

On Day 26, Betty was active again. She urged Dorothy to assume the role of her baby. Dorothy was an unmarried girl of 18 who desired maternal love, and had attached herself closely to Betty and Cathy. Dorothy said later that she was awakened at night by Betty who had a "wild appearance" and had demanded that Dorothy should be born again, but this time as her (Betty's) child. Dorothy was suggestible and began to feel sensations as if she were going through the process of being born. The next day, she enacted a baby role. She stayed in bed crying like an infant, unable to walk or to talk properly. The following day she got up, but her behavior remained babyish, noisy and demanding. She insisted on kissing people she was fond of. When a nurse demurred, Dorothy tried to curl up in her lap like a child.

From that time on, Anne, Betty, Cathy and Dorothy became almost inseparable companions. They formed an exclusive clique in which Betty was the leading spirit. True to her fantasy of being Lilith, she claimed both Cathy and Dorothy as her offspring. This claim was, however, challenged by Cathy who wanted to regard Dorothy as her own daughter.

The ward watched, with disapproval and envy at first, the close contact and the confidential exchanges of secrets among the members of the clique. The other patients began to suspect Lesbian activities; they felt alarmed, indignant and resentful. The clique members responded by drawing still closer and more arrogantly together.

The sharp division between the clique and the hostile, scandalized ward gave rise to explosive tensions and tempers. Some of the nurses grew uneasy when there were repeated, though unsubstantiated, accusations that the clique members engaged in homosexual activities.

This stage lasted about three weeks. Then—on Day 50—a final patient succumbed to the hysterical infection. This was Edith, a childless, married woman of 28. Already, as early as Day 6, she had shown signs of being affected. She had had a dream of pregnancy then, but had incurred the disapproval of Anne, who had told her that she was only “picking up other peoples’ states of mind.” After Betty’s parturition symptoms on Day 20, Edith had begun to eat voraciously and to put on excessive weight. She had further pregnancy dreams and developed morning sickness.

On Day 50, she arrived at her interview with her doctor, carrying a rather shapeless doll made from black cotton stockings. She said she had gone “through an extraordinary pantomime of a woman with a child.” But she had not felt that it was only a pantomime. “I felt so happy. My child was real to me. I wanted to feed it. I had it in bed with me and I was afraid to move in case I hurt it. I had it in my arms during the night. I had an urge to look at it and gloat over it privately.”

Edith tried to join the clique. But by this time, its close and exclusive bonds had begun to loosen. The members started to participate in the social life of the ward again. The excitement ebbed away, and gradually everything returned to normal routine once more.

DISCUSSION

The events of this hysterical epidemic can be divided into three stages: (1) Anne’s dream of childbirth; (2) the agitated preoccupation of the ward with topics of sex, birth and death; and (3) the hysterical enactment of birth and re-birth experiences by a few patients who joined together in a secretive clique.

The original event which provoked all subsequent reactions was Anne’s dream of childbirth. This might be regarded as an infectious event, as it ushered in the mental epidemic in the ward. But such terms as “infectious” or “contagious” might suggest that the event itself spread through the ward causing an outbreak of nightmares of parturition. This, however, was only partly true and certainly did not constitute the essence of the epidemic.

An imitative spread of an infectious event has been reported in some of the mental epidemics which have appeared in scientific literature recently; for instance, in precomatose patients undergoing insulin-shock therapy, who responded with noisiness to the, obviously dim, perception of noisiness in another patient;¹⁷ in the pupils of the Louisiana high school who, after 24 and more days, imitated the hysterical jerks of another pupil;¹⁸ and in the victims of the Mattoon epidemic who copied such hysterical symptoms as nausea, vomiting, palpitations, paralyses of legs, and dryness of mouth.¹⁹

In all these examples there is undoubtedly some imitation of unusual behavior. But the epidemics were not limited to the imitation of hysterical symptoms. In the Louisiana high school there was also a panic epidemic among the parents of the pupils. The parents invaded the school to remove their children, because they had heard a rumor of an epidemic of fits there. The Mattoon epidemic affected not only those who believed they had been gassed, but also many other citizens who formed armed gangs of vigilantes and roamed the streets in search of the fictitious mad anesthetist. The police eventually had to send out a warning for these gangs to disband and put their guns away, "because some innocent person may get killed." Moreover, where imitation of behavior took place, it was never so slavish in form as in the few—though not very well attested—instances of what might be called "epidemic latah," such as the reputed incident when a regiment of Transbaikal Cossacks echoed their colonel's commands, copied his actions, and finally repeated his swear words, but did not carry out his orders.²⁰

Some authors see the essence of mental epidemics, not in the spread of concordant behavior, but in the dissemination of infectious ideas. This, for instance, is the thesis which Penrose²¹ has elaborated. It is, no doubt, a very attractive and plausible thesis. Those who embrace the infectious idea are obvious victims of its contagious power; those who criticize and reject it can be said to have acquired a resistance against the infection; and those who ignore the issue altogether are evidently immune. In such a thesis the analogy between physical and mental epidemics is carried very far. That there are certain advantages in doing this, was demonstrated by Penrose, to whom the analogy suggested new ways and

means of studying numerically the rise and fall of mental infections.

In the writers' own epidemic, the main infectious idea was the idea of childbirth. It agitated the ward, became the central topic of discussion for three weeks, and was transformed eventually into hysterical manifestations.

Yet it would obviously be an oversimplification to equate mental epidemics too closely with the spread of infectious ideas. One could hardly say that the precomatose insulin-shock patients who responded collectively to noise were activated by an infectious idea. Nor is it likely that a common idea was in the minds of the psychotic patients whose collective disturbance was described by Stanton and Schwartz.²² Moreover, in a quickly-spreading panic-epidemic, the unthinking and almost automatic nature of the response has always been regarded as its most essential characteristic.

It seems justified, therefore, to consider the possibility that the essential quality of mental epidemics lies in the stimulation and dissemination of emotions, and not in the spread of ideas or behavior.

The stimulation and dissemination of emotions in a group is by no means a rare phenomenon, though it is not very often spectacular and obtrusive enough to be called by the name of mental epidemic. In fact, it seems that the emergence of collective emotions in a group is generally inconspicuous, and may go undetected unless a close and detailed scrutiny of group events can be carried out by trained observers.

It is fortunate that the recent rise in the application of analytic group therapies has provided an excellent opportunity to study group events very carefully and under favorable conditions. It is, therefore, of interest that several group therapists, working independently, have reported that their patients were frequently activated by a common undercurrent of emotions. They have used different names to describe this phenomenon. Bion,²³ for example, has spoken of "group mentality," one of the present writers (Taylor)²⁴ of "collective motivations," and Ezriel²⁵ of "common group tensions."

Consider a specific and typical example of the stimulation of group emotions in particular situations. It will help to clarify the issue.

If one adds a new patient to a therapeutic group whose membership has been stable for some time, it invariably arouses feelings of dissatisfaction and resentment in the established members who have come to know each other fairly well and who have made some progress together on the road to recovery. They realize that the newcomer will retard their progress; and they, therefore, resent his intrusion. But the resentment need not be openly expressed; it frequently manifests itself in a great variety of indirect and evasive ways and means.

First of all, there are individual differences in the way group members react to the feelings of resentment that have been aroused. Some obsessional patients, for example, may be so frightened of their own angry feelings that they tend to deny their existence, and may even counteract and camouflage them by a demonstration of excessive friendliness. Other patients recognize that they feel annoyed, but remain unaware that their annoyance is directed against the intruder or against the group therapist who, after all, is responsible for the presence of the intruder. These patients are likely to find a substitute target for their annoyance.

If the group members are very inhibited in revealing their feelings, they may for a time remain ignorant of the fact that their feelings are shared. There may be "pluralistic ignorance" of the fact, to use the apt term of F. H. Allport.²⁶ One may even speak of "pluralistic emotions" to characterize such uncommunicated feelings of the same kind in the individual members of the group. Such pluralistic emotions are very likely to occur on many occasions and in many types of groups, as there are many reasons of etiquette, good manners, and self-regard which militate against the public exhibition of feelings, particularly when they are directed against individuals who are present at the time. It is only when pluralistic emotions are openly exhibited in word or deed, by inflection of voice or by gesture, that they are transformed into "collective emotions," the kind which are overtly, and not covertly, shared by the members of a group.

But emotions are hardly ever free-floating and without an object. When group members do not realize, or are afraid to reveal *coram populo*, that their annoyance is directed against the intruder and the group therapist, they tend to fasten on any suitable object which, more or less fortuitously, presents itself as a target for the collective discharge of annoyance.

In this particular case (of a newcomer to a therapy group), the real objects of annoyance are very obvious. But this is not always so. The origin of pluralistic emotions is often obscure, or it may be so commonplace that it does not seem to warrant attention. The events which have elicited pluralistic emotions may even differ from member to member. But all that matters in this context is the presence of some degree of concurrent, though uncommunicated, emotions in a group of people. If then an idea (or event) occurs which allows the free discharge of feelings, it appears to act like an "infectious idea" that has aroused collective emotions, though in fact it merely transforms pluralistic into collective phenomena.

As an illustration of this process, one may cite a transient therapeutic fashion among dermatologists. This has been numerically studied by Penrose²⁷ in order to exemplify his concepts of the working of an "infectious idea": its latency period, the sudden epidemic rise, the development of resistance against it, and the emergence of an eventual immunity against it. The example concerns the treatment of certain intractable skin diseases with thallium. The pharmacological effects of thallium had been known since 1914; its use became fashionable during the years 1925 to 1940, when the number of publications which first advocated and then denounced the treatment rose and fell in characteristic curves.

It is the writers' contention that thallium therapy, or any other therapeutic fancy that enjoys a brief span of popularity, cannot be regarded as an idea that is truly infectious—in the sense in which a pathogenic organism that spreads epidemically in a susceptible community is infectious. Nobody could have foreseen in 1925 that thallium would be widely adopted in the treatment of certain skin diseases; it had then been known as a drug of potential, but untried, therapeutic efficacy for over 10 years.

It would have been similarly impossible to predict that a patient's nightmare dream of childbirth would provoke a collective agitation in the writers' hospital ward. Ideas of childbirth occur not infrequently in a ward of women neurotics, and do not, in general, lead to widespread disturbances. Neither the concept of thallium therapy nor the thought of childbirth is notorious as an agitator of group emotions.

Thus, instead of thinking in terms of infectious ideas which are propagated in a group and inflame the feelings of those affected,

it seems more adequate to assume that whenever there are covertly-shared pluralistic emotions and desires in a group—for whatever reason—that group will unwittingly strive to adopt, at least temporarily, any suitable idea that chance and circumstances provide, so that the accumulated emotions can be ventilated under the banner of that idea.

If the pluralistic emotions derive from fairly basic instinctual urges, the adopted idea will often clearly indicate the emotional sources. One may assume that this was the case in the hysterical epidemic observed by the writers. It can hardly be doubted that many covertly-shared erotic and maternal feelings were rife among the female patients who lived in the small and intimate community of a hospital ward and whose feelings were repeatedly stirred up in individual therapeutic interviews. These feelings found an outlet, at first, in the intense and animated discussions of sex and childbirth, discussions which clearly displayed the nature of the underlying emotions; and, later, in the dramatic enactments, by patients who had been stimulated to express their feelings, in demonstrative hysterical experiences.

If the pluralistic emotions of a group are of a more sophisticated kind, involving self-regard and social role, the ideas adopted and animated by the emotions often appear in such a rational guise that the emotional source is far from obvious. This may have happened in the temporary "fashion" of using thallium therapy which was mentioned. Medical men certainly have pluralistic desires to find better and more powerful measures for the treatment of intractable diseases. But doctors do not, as a rule, engage in futile and embarrassing discussions of their personal desires and frustrations; they, rather, test the curative promise of new ideas and of the latest therapeutic fashion.

The postulated element of contingency and chance in the adoption of ideas by pluralistically-stirred groups is not easily accepted by the scientific fashion of today, which aims at deterministic explanations, at predictability, and general laws. When Brunswik²⁸ argued in a symposium on the probability approach in psychology that "the environment to which the organism must adjust presents itself as semierratic and that therefore all functional psychology is inherently probabilistic," he encountered much criticism. Krech²⁹ even quoted Einstein's aphoristic objection to the uncertainty principle in atomic physics to the effect that "God does not gam-

ble." With this Brunswik³⁰ agreed, adding: "But the crucial point is that while God may not gamble, animals and humans do, and that they cannot help but gamble in an ecology that is of essence only partly accessible to their foresight. And although an infinite and omniscient intellect could operate by law and ratiocination alone, as a psychologist even such a being would have to . . . operate at the probabilistic level of discourse."

The choice of ideas as carriers of collective emotions is, however, not entirely haphazard. Their eligibility obviously varies. Some ideas seem to be fairly consistent in their capacity to provoke heated arguments in certain groups, such as those of a political, racial, nationalist or religious nature. Others are evanescent, losing appeal for a long time after they have had brief innings as fashions, crazes or temporary topics of interest. The idea of childbirth obviously belongs to the latter class. Had it been possible to trace the vicissitudes of this idea in the hospital ward, and to assess its varying eligibility to serve as the focus of animated ward discussions, one might have expected to find a rather irregular curve, showing certain long-term swings from high to low eligibility.

To obtain some confirmation of this expectation, let us look at ideas which not only vary in fashion cycles, but are also easily measured and charted. One may turn for this purpose to the graphs of trade cycles in the economic field or to the study of certain measurable trends in the field of dress fashions. Richardson and Kroeber,³¹ for example, have measured the variations, during the past 300 years, of certain aspects of women's evening dress. They found rather irregular short-term fluctuations of mode, but the long-term trends of fashion unmistakably swung from the maximum to minimum measurements with a fair degree of regularity. The width of skirts, for instance, reached maximum scores of about 100 in the 1650's, 1740's, and 1860's, and minimum scores of about 40 in the 1670's, 1810's, and 1920's. The authors compare their findings to "what economists call secular trends, which also carry oscillations or lesser cyclic movements on their surface." If these observations are expressed in terms of fashion ideas rather than scores, it could be said that such an idea as the farthingale reached its height in the 1650's, then gradually lost its fashion appeal and was ousted from general wear by 1665 (though not yet at court). By 1680 it started a long slow recovery,

to reach another maximum in the 1740's. Then there is an irregularly narrowing trend in skirt width, and, by the time of the French Revolution, the farthingale is discarded. It returns as the crinoline and rises to another fashion peak in the 1860's.

This finding is in agreement with expectation. It demonstrates also that long-term variations in the eligibility of ideas obviously reduce the pool of potentially infectious ideas from which an emotionally-stirred group may choose. This enables one to make some negative predictions about the collective emotions of a group; they are that certain unfashionable ideas are unlikely to appeal to that group in the near future.

It is only under specially favorable conditions that one is sometimes enabled to make a positive forecast concerning the idea which is likely to become the focus of collective emotions in a group. This can happen when an idea (or event) obtrudes itself so provocatively on a susceptible group that its selection as an infectious idea becomes almost inevitable. But even then it is an almost impossible task to foresee the intensity of the collective reactions which will be aroused. In instances where the presentation of a provocative idea has led to intense reactions which deserve the name of mental epidemic, these reactions have invariably occurred as surprises.

This was the case when, in 1938, the broadcast by Orson Wells of the radio play, *The War of the Worlds*, excited panic reactions in over a million listeners all over the United States.³² The same play, broadcast in a Spanish translation, had a similar effect some time later in Quito, Ecuador.³³ The mad-anesthetist scare in Mattoon³⁴ followed publication of an idea which was provocative by implication. An attentive reader of the *Mattoon Daily Journal-Gazette* on September 2, 1944, might have been not only excited by the striking headline "Anesthetist Prowler on Loose," but might also have been puzzled by the ominous inclusion of the word "first" in the subsequent column heading, which ran: "Mrs.—and Daughter First Victims." The emergence of further victims was more than likely after such a broad hint.

It might also be said that, in the case reported here the transformation of a collective ward disturbance into a hysterical epidemic was rather likely after Betty's demonstrative display of hysterical symptoms. But Betty's response had not been expected, nor had it been anticipated that her example would be copied.

Betty had been under psychotherapeutic surveillance for years but had never before shown any tendency to produce hysterical symptoms, or any inclination to act as the impresario and stage manager of a hysterical extravaganza. She happened to have been in an unusual condition of hypomanic excitability at that time. The fascinating ideas of birth, sex and death, which were so disturbingly bandied about in the ward, awakened a dormant memory in her of the myth of Lilith as portrayed in *Back to Methuselah*.³⁵ There, in Part I, the serpent tells Eve how it is possible to conquer death by sex and birth. "Born is a beautiful word," says Eve; and the serpent tempts her: "Why not be born again and again as I am, new and beautiful every time?" Then the serpent talks of Lilith who had been alone and without a man, but had renewed herself in dual form as Adam and Eve. "How did Lilith work this miracle?" asks Eve, and the serpent tells her: "She imagined it . . . You imagine what you desire; you will what you imagine, and at last you create what you will." It was as if Betty had remembered and followed the advice of the serpent. Her mind had willed and wrought the hysterical miracle of birth and re-birth, not only in herself, but also in the few associates who succumbed to the spell and power of her influence.

Yet even the most provocative idea or the most suggestive power of a person would be incapable of rousing collective emotions to the pitch of a mental epidemic, unless the soil had been prepared. It seems to the writers that no mental epidemic (as distinct from minor collective emotions) can ever occur unless an unusual readiness for emotional explosions exists in the group concerned. This appears to be a necessary condition for the outbreak of mental epidemics.

The invasion-from-Mars and the mad-anesthetist epidemics occurred in communities in which alarming eventualities were half expected at a time when a world war was threatened or raging. Similarly, the emotional climate in the writers' hospital ward had been rather stormy for three weeks before the onset of the hysterical epidemic.

It is possible to cite much additional evidence in support of the thesis that mental epidemics are likely to arise when times are unsettled and emotions inflammable. One may look, for example, at the notorious hysterical epidemic which gave rise to the Salem

witch trials of 1691 and 1692, when the Massachusetts Bay Colony seems to have run wild in a frantic search for witches, when the prisons were filled to overflowing on the accusations of hysterically-convulsed girls, and when 19 of the supposed witches suffered death on the gallows. Starkey,³⁶ in a re-examination of the events of that epidemic, remarked on the uncertainties and anxieties to which the community of the Bay Colony had been subjected at the time. There had been an outbreak of smallpox; there had been Indian raids; and there had been widespread alarm that the community might lose its charter as an independent colony, and, with it, lose its inhabitants' status as freeholders of their land. Starkey put it in these words: "A people whose natural impulses had long been repressed by the severity of their belief, whose security had been undermined by anxiety and terror continued longer than could be borne, demanded their catharsis. Frustrated by the devils they could not reach, they demanded a scape-goat and full-scale lynching. And they got it."

The problem of mental epidemics may also be approached from a different angle. So far, the attempt has been to show that an unusual readiness for emotional explosions is a prerequisite of mental epidemics. What ideas will be seized upon to give form and content to an epidemic, remain, however, largely a matter of fortuitous, though not entirely indiscriminate, choice. One may also attempt to elucidate the complementary problem of studying the history of a particular idea through the centuries to see whether there have been times of social and emotional unrest when the idea has appeared in an excessive and extravagant form so that it has acquired temporary notoriety. In other words, this is to inquire whether such an idea has become associated with the qualities which are characteristic of mental epidemics.

This can be best done if one examines ideas which can be recorded in quantitative form. Turning again to the study of feminine evening dress by Richardson and Kroeber,³⁷ it is found that two dress ideas have varied comparatively little in the course of 300 years, except during one significant decade. The ideas are length of skirt and position of waist. The writers have calculated the main statistics of the measurements of these ideas. The length of skirts had an average score of $97.0 \pm .25$ (during more than 200 years) and the position of the waist an average score of $25.6 \pm .25$.

In the decade 1920-1929 the length of skirts was shortened to an average score of 79.0 ± 2.56 , and the position of the waist was lowered to an average score of 33.1 ± 1.35 . Both these deviations from the usual mean measurements are excessive, extravagant and statistically highly significant. It, therefore, seems that the length of skirts and the position of the waist in feminine evening dress had remained relatively unaffected by the vicissitudes of European history during three centuries until the social and emotional unrest after the first World War took hold of them and distorted them in a flourish of sensational extravagance. It seems justified to regard these temporary eccentricities of fashion in the 1920's as the expression of a mental epidemic in the sartorial field.

Though the writers can find only one example of a mental epidemic affecting ideas of dress fashion, there are certainly other ideas which so readily appeal to mass emotions that they seem to excite mental epidemics at rather frequent intervals. The idea of warfare obviously falls into this category. For example, the studies of Wright,³⁸ who attempted to quantify the severity of wars according to the number of casualties recorded, support the assumptions of many authors who have maintained that wars occur in almost regular cycles.

The idea of quick riches also belongs in the epidemic category; it has excited several epidemics of wild financial speculations which invariably ended in catastrophe. There was the tulip mania of the seventeenth century, the South Sea Bubble of the eighteenth, the railway speculation of the nineteenth and two crazes of speculation in the '20's of this century: the Florida Land Boom of 1925 and the Wall Street Boom and Crash of 1928-1929. Galbraith,³⁹ who is a professor of economics, has recently examined the reasons for the fever of financial speculation in the 1920's.

It is obvious that a mental epidemic of this kind cannot occur unless economic conditions are favorable; yet Galbraith rejects as "obvious nonsense" the widely-held economic theory that the wild-fire of speculation was a consequence of the easy supply of credit at that time. Far more important, in his opinion, was the "speculative mood" of the population, the "pervasive sense of confidence and optimism and conviction that ordinary people were meant to be rich." After having made this diagnosis, Galbraith goes further, though with diffidence, and prophesies that a recurrence of the

speculative orgy in America is rather probable, because "no one can doubt that the American people remain susceptible to the speculative mood." The force of this last argument, however, appears doubtful, because speculative moods are like other collective emotions which frequently quicken the life of communities, but only rarely grow beyond control to reach the intensity and upheaval of a mental epidemic.*

SUMMARY

A hysterical epidemic in a hospital ward of female neurotic patients is described. It revolved around the idea of childbirth, which first caused excited discussions for three weeks. Then a small group of patients produced hysterical symptoms corresponding to birth and re-birth experiences.

The essence of mental epidemics has generally been seen in the imitative propagation of behavior or in the dissemination of ideas which have been regarded as "infectious." It seems to the writers, however, more appropriate to postulate that the essence of mental epidemics lies in emotional events, and that these epidemics are only the excessively wide variants of group emotions of lesser intensity.

Group emotions are covertly shared or "pluralistic," as long as they are not openly exhibited. It often requires the adoption of a particular idea by a pluralistically-stirred group before the accumulated emotions can be freely expressed. This idea will then appear to have been "infectious" and to have aroused "collective" emotions.

There is an element of chance in the choice of these "infectious" ideas. But the choice is not entirely indiscriminate, as the eligibility of particular ideas varies in the course of time. This variation in eligibility can be demonstrated as variations of fashionable appeal, especially when the ideas concerned can be expressed in quantitative form and followed over a long period.

Collective emotions only rarely reach the intense and disturbing degree which characterizes mental epidemics. For this to happen, an unusual readiness for emotional explosions must exist

*It is not the intent of the authors to discuss the psychodynamics of hysterical contagion in this paper, but rather to concentrate on the more purely numerical epidemiological and social aspects of the phenomenon.

in the groups concerned. This appears to be a necessary condition for the occurrence of mental epidemics.

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EDITORIAL COMMENT

"...AND THE SON OF A BITCH IS FOUR"

"Two and two; and the son of a bitch is four." The small boy who mystified and horrified his mother by mangling, "Two and two; the sum of which is four" has long since grown up.

From garbling primary school arithmetic lessons, this boy has progressed to garbling scientific statistics. He has become a professional medical producer of amateur medical mathematics. The present discussion aims to be a calm and reasoned discourse (in the frame of reference of the editor) about some of his statistical activities.

Since editors are human, calmness and reason may not be altogether attainable. Ordinary medical statistics are capable of evoking subcortical affects of rage, and something akin to agitated depression is by no means unknown. Good editorial offices are equipped with at least a pallid super-ego or two—which operate best under pressure. Except possibly for half-baked references, there are no provocations better calculated than half-baked statistics to increase the editorial pressure beyond the optimum for good operation—in fact until Vesuvius blows up.

The eruptive process starts with a mild rustle of the pages of a neatly typed scientific article; there are deeper rumbles through the introductory discussion of what data prove what; live steam, poison gas and scoriae vomit forth as one reaches the curves, the bar graphs and the tables. The lid flips with realization that somebody is counting the uncountable, measuring the immeasurable, comparing the incomparable, concluding from the inconclusive, or finding scientific significance in the insignificant.

The editorial eruption, unlike the geologic, can be averted, and ways of averting it will be considered here. Some of them are suggested by a small book—reviewed elsewhere in this issue*—written by a psychiatrist and educator who can detect a statistical spirochete in however dark a field of scrambled psychiatric terminology. It is *A Primer of Statistics for Non-Statisticians* by Abraham N. Franzblau, M.D., and it is designed for what Dr. Franzblau calls the "consumer," not the "producer," of statistics. It is a revised

*Franzblau, Abraham N.: *A Primer of Statistics for Non-Statisticians*. 150 pages with index. Paper. Harcourt, Brace. New York. 1958. (Reviewed in this issue.)

edition of the text used in a stiff but short course that the author has been teaching for more than 20 years to medical and theological students. It is designed to inform them about the processes that lie behind columns of figures, curves on charts, and measures of reliability. It is hereby heartily recommended also for the education or re-education of graduate physicians who read or write medical reports (the scientific salvation of Franzblau's divinity students is another matter); and these medical readers and writers include a good many occasional producers, as well as consumers, of statistics.

The occasional producers of statistics who could profit from this little text for consumers may well be the majority of medical writers. This discussion of the matter—the gods of chance and probability be praised—will not in itself be statistical. That a majority of medical writers may be somewhat confused mathematically—and some of them as badly as the small boy about “the sum of which is four”—is not a conclusion based on statistical analysis, but is a clinical observation based on a good many years of reading and editing medical writings. It is an observation advanced with full faith in its validity; but if a sound statistical analysis of a representative sample is ever made, this journal will be the first to welcome it.

For illustrations, one might cite—in place of too-recognizable examples from this journal's experience—a small and very amusing book* that Franzblau recommends to his students. *How to Lie with Statistics* is a treatise in which Darrell Huff, who knows his figures thoroughly, discusses inadvertent, as well as deliberate, falsification. Among his examples are ten or a dozen from the medical profession. He cites the reports of a few years ago from a number of investigators on the antihistamines. They showed “a very considerable percentage” of colds clearing up after antihistamine administration. This led to a considerable boom in antihistamine pills when there was general failure to take account of the fact that colds are self-limiting afflictions that clear up in a short time with or without treatment. Huff cites a well-known failure of a polio vaccine test. It failed because the investigators did not get a large enough sample for observation of a disease with the low incidence of paralytic poliomyelitis. He notes a can-

*Huff, Darrell: *How to Lie with Statistics*. 142 pages. Cloth. Norton, New York, 1954.

cer report in which an unavoidably built-in bias in the sample is said to be large enough to account for almost all the improvement in survival rate that was attributed to early detection and treatment.

One may, of course, legitimately criticize the critic. Aiming close to home, Huff writes: "A psychiatrist reported once that practically everybody is neurotic. Aside from the fact that such use destroys any meaning in the word 'neurotic,' take a look at the man's sample. That is, whom has the psychiatrist been observing? It turns out that he has reached this edifying conclusion from studying his patients, who are a long way from being a sample of the population. If a man were normal, our psychiatrist would never meet him." Wow!

Where has the critic gone astray? First, his semantics are faulty; second, his view of the psychiatrist's sample is hemianopic, or, let us say, cockeyed. Huff sees only the psychiatrist's patients: "If a man were normal, our psychiatrist would never meet him." But "our psychiatrist" meets many "normals." He meets other psychiatrists, nurses, psychologists, hospital attendants, and office employees, of whom at least a few are considered "normal." In any case, he usually has a family and a small or large circle of social acquaintances. His unavoidable contacts include at least a few business and professional people outside medicine. He must become acquainted with "normal" members of his patients' families. He belongs to professional societies, and he probably is a member of a social, or golf, or political club; or he may be one of a circle of chess players or may play some horn in a band. The "man's sample" includes as many nonpatients as patients; it may not be a representative sample of the entire population, socially or economically, but there is no reason to think that the "normals" in it are not representative psychologically.

If the psychiatrist then finds, on the basis of this sample, that the "normals" of his acquaintance all show traces of abnormal reaction like those that—to a much greater degree—characterize his patients, he has good statistical reason to conclude that "practically everybody is neurotic," though diplomacy would suggest that he explain his meaning to the psychiatrically unsophisticated. And the remark does not, to the informed, destroy "any meaning in the word 'neurotic,'" for the word, in this sense, is in daily usage. It implies here the sort of irrational behavior or motiva-

tion which may not bother anybody, even its possessor. When that behavior is exaggerated to a degree unacceptable to the individual or to society, the "normal" who is neurotic becomes "a neurotic" who is no longer "normal." The word is used in a different sense, it becomes a diagnosis, and the neurotic person is one in need of psychiatric care. The language is full of words, particularly relating to human attributes, that cover many degrees of intensity. Everybody is self-centered—or almost everybody. What, in a mild degree, is unnoticeable, becomes highly unpleasant when intensified; if it is intensified enough, it becomes socially unacceptable, and the self-centered individual is adjudged psychotic. At this point, fortunately for the layman, psychiatry will find another name for this self-centeredness. Maybe there should be another for extreme neurosis.

Yet, even though the psychiatrist's statistic—that practically everybody is neurotic—is right and Huff is wrong, Huff's mistake is partly the psychiatrist's fault. (The misunderstanding about the sample is not.) It is the business of the statistician to make his meaning plain. Sound statistics that the reader cannot understand are as irritating, though not so damaging, as unsound ones that the reader can. And statistics that the reader cannot understand arrive at the editor's desk frequently. In the instance discussed here, there should have been some qualification in the statement that "practically everybody is neurotic." "Practically everybody has some neurotic traits," or, "Practically everybody is somewhat neurotic," would have served. True, the original statement may be correct; and psychiatrists need no explanation; it is obvious that the expert statistician who is a layman in psychiatry does. Since the statement appears to have been intended for the layman in psychiatry, the misunderstanding is the psychiatrist's fault, or perhaps that of the person who quoted or edited his remarks.

Carelessness in presenting fundamentally sound statistics is one of the major annoyances of scientific editorial life. Astonishing mistakes can appear in the routine reports of professional statisticians, and the reference is not to undetected typing errors either. A text and a table disagree; the editor asks the author to correct matters in proof; the author discovers that the subordinates directed to prepare the tables compiled them from raw data, not from the figures adjusted for age, sex or whatnot on which the theme of the paper and the discussion in the text are based.

Or there may be a question of percentages. As Huff points out, it is the easiest thing in the world to shift bases, purposely or inadvertently. Suppose the incidence of disturbed behavior on a chronic hospital ward is cut 50 per cent by one of the "tranquilizers" or phrenopraxic drugs. Suppose, then, that the drug is discontinued, and disturbed behavior promptly increases by 50 per cent. The situation is by no means so bad as before the drug was administered—to be as bad, the disturbed behavior, reduced by 50 per cent, would have to be increased 100 per cent. The base has shifted. Half the old base equals the whole new base. When the new base is in less obvious relationship to the old, the figuring can become really tricky. To restore a 25 per cent reduction requires an increase of 33.3 per cent; to make up a 12.5 per cent cut calls for a 14.3 per cent rise; to counter a drop of 18 per cent, the jump is 22.0. It's all plain enough but who, at a quick glance, sees it?

Since the writer has many more glances than just one quick one, to shift bases without adjusting percentages is either sheer gall or extreme carelessness. But to commit the most common offense with percentages, the contributor does not need to be slap-happy. All that he needs to do is to forget that reader and editor are not in communication with him by ESP. Then he sets down his adjusted percentages and omits mention of his bases altogether, something like this: "Of the 340 (68 per cent) schizophrenics, 136 (40 per cent) were vastly improved, and 42 (31 per cent) were well enough to be out of the hospital." Here are three bases in one sentence, none of them mentioned; and while anybody can figure them out, nobody should be asked to. Rather than figure them out, the reader or editor in a hurry is more likely to take the report as showing that 31 per cent of all patients treated, or perhaps of all schizophrenics treated, were well enough to be out of the hospital.

So much for the moment for the improper presentation of properly-used statistics. There is much more to be said about it, and more will be; but when the subject of statistics is considered in broad perspective, there are general considerations of even more significance. Statistics are of such vast importance in modern science that they are often regarded as the foundation of all science. The scientist aims to count and measure and then interpret

his data. To quote a recent writer on the philosophy of science:*

"The philosophy of science by which we conduct the material affairs of our lives today says three important things. Firstly, it says that a scientist may enquire about anything. Its second essential feature is that the results of its enquiries must be recorded and, as soon as a way has been found to do so, recorded in quantitative terms as weights, measurements, wavelengths, velocities, temperatures, chemical composition, atomic configuration—or what you will. The third tenet of science is that, basing his conclusions on the recorded observations, the scientist can set up a theory or hypothesis to explain the facts he has observed or measured. If he can devise an experiment dependent on his hypothesis and the results of this experiment come out as they should, then he can be more confident that the hypothesis is correct."

The making and using of records in quantitative terms, as described here by Professor Pyke, is the making and using of statistics. The process has not always been recognized as a foundation stone of science; some great scientists have had a very poor opinion of it indeed; the chance and probability theories underlying many medical and other vital statistics were disreputable in origin; one occasionally encounters today a person who will not buy life insurance because of scruples against "gambling"; and it is to be noted that the world's greatest insurance organization issues policies which amount to bets on almost anything. The first of the great theorists on chance and probability seems to have been a flamboyant physician-mathematician-gambler of the Renaissance, Gerolamo Cardano (Jerome Cardan), who applied this mathematical knowledge, not to the practice of medicine, but to the pursuit of gambling.** Yet Cardano's pioneer work, *The Book on Games of Chance*, contains the basic rules on which many medical statistical procedures are ultimately based. They are the rules by which we determine, or try to determine, whether the results of psychiatric inquiries, recorded, as Pyke specifies, "in quantitative terms," are due to chance, or to some other factor—like a medication or a therapeutic procedure we are endeavoring to test. Oddly,

*Pyke, Magnus: *Nothing Like Science*. 172 pages. Cloth. St. Martin's Press. New York. 1957. (Reviewed in this issue.)

**Ore, Oystein: *Cardano the Gambling Scholar*. 249 pages with indices and translation of Cardano's *Book on Games of Chance*. Cloth. Princeton University Press. Princeton, N. J. 1953.

our modern methods are not derived directly from Cardano, but from the great French mathematicians, Blaise Pascal and Pierre de Fermat, writing a century later and in ignorance of Cardano's work—for the benefit of another gambler.*

The whole statistical process has seemed questionable to many critics, including some of the foremost men of medicine of modern times. Some 90 years ago, the great Claude Bernard, in *An Introduction to the Study of Experimental Medicine*,** denounced dependence on statistics in medical science in unmeasured terms:

"As for statistics, they are given a great role in medicine. . . The first requirement in using statistics is that the facts treated shall be reduced to comparable units. Now this is very often not the case in medicine. Everyone familiar with hospitals knows what errors may mark the definitions on which statistics are based. . . no two patients are ever exactly alike . . . the average, or the relation deduced from our comparison of facts, may always be contested. . . in my opinion, scientific law can be based only on certainty, on absolute determinism, not on probability. . .

"... With phenomena whose cause is defined, statistics have nothing to do; they would even be absurd. As soon as the circumstances of an experiment are well known, we stop gathering statistics; we should not gather cases to learn how often water is made of oxygen and hydrogen; or when cutting the sciatic nerve, to learn how often the muscles to which it leads will be paralyzed. . .

"In a word, if based on statistics, medicine can never be anything but a conjectural science; only by basing itself on experimental determinism can it become a true science, i.e., a sure science. . . Indeed, if a phenomenon appears just once in a certain aspect, we are justified in holding that, in the same conditions, it must always appear in the same way. If, then, it differs in behavior, the conditions must be different. . ."

Bernard concedes: "We shall certainly never reach absolute determinism in everything; man could no longer exist. . . But man's intellectual conquest consists in lessening and driving back indeterminism in proportion as he gains ground for determinism by the help of the experimental method."

*Newman, James R.: Editor's commentary on Ernest Nagel and the laws of probability. In: *The World of Mathematics*. Vol. 2, p. 1395. Simon and Schuster. New York. 1956.

**Bernard, Claude: *An Introduction to the Study of Experimental Medicine*. Translated by Henry Copley Greene, M.D. 226 pages. Paper. Dover. New York. 1957.

One may, without accepting his broad conclusions, agree, with some qualifications, with most of Bernard's general reasoning. It is probably good for any medical experimenter to realize that his methods do not lead to absolute determinism in results; and a reading of Bernard should also be salutary for any statistician. For the statistician, it is well to be reminded that, however good his statistics, they are still statistics; he is still dealing with probabilities, however high the probabilities.

But the scientific frame of reference has changed vastly since Bernard's day—in a fashion many scientists consider revolutionary. Absolute determinism in any discipline is far less attainable than Bernard supposed. We can concede that we do not need to gather cases to learn how often water is made of oxygen and hydrogen, or to learn how often the muscles supplied by the sciatic nerve will be paralyzed when that nerve is cut. We still admit, in the first case, the validity of the equation $2H+O=H_2O$, though we have taken pains for some years to write it $2H_2+O_2\rightarrow 2H_2O$, to indicate molecular structure and show the direction of action. But this does not describe completely or absolutely what takes place. We know that two molecules of hydrogen combine with one of oxygen to form two of water; but the relative weights of hydrogen and oxygen in this compound are matters of measurement; the figures we use for them are "the most probable" figures, or the equivalent of the best statistics. A textbook in fairly recent high school use gives these "most probable" figures as one part hydrogen by weight to 7.94 parts of oxygen.

Again, we know today that one atom or molecule of an element does not necessarily equal another atom or molecule of the same element. Isotopes of an element are atoms with identical nuclear charges, but with different numbers of neutrons, giving different atomic weights. The atomic weight one finds in a table is a mean of the atomic weights, adjusted for frequencies, of a mixture of the isotopes—again an estimate or statistic, not an absolute.

There are still other considerations. "In the light of the quantum theories," says Louis de Broglie,* "classical mechanics and physics seem then not to be rigorously exact in principle, but their inexactness is completely masked in usual cases by experimental errors in such a way that they constitute excellent approximations

*de Broglie, Louis: *The Revolution in Physics*. 310 pages with index, bibliography, chronological table and biographical note. Cloth. Noonday Press. New York. 1953.

for phenomena on our scale. Thus we meet again the customary process of scientific progress: well-established principles, well-verified laws are conserved, but they can be considered valid only as approximations for certain categories of facts. . . . Then, in macroscopic physics, quanta, although hidden by virtue of their smallness through an unavoidable lack of precision in measurement are however there, and their existence entails in principle all the consequences . . . enumerated."

de Broglie throws in a general observation that it is only by a "process of successive approximations that science is capable of progressing without contradicting itself."

Claude Bernard to the contrary, we can perhaps use medical statistics with clearer consciences now that it is more clearly recognized that approximations are the guides in the physical sciences where Bernard thought to find absolutes. But we can still profit by Bernard's cautions as to the limitations of the statistical method.

We can profit the more from Bernard, because, by virtue of the material, medical statistics must make greater allowance for probability than statistics in such sciences as physics and chemistry. The accepted measurement of the speed of light may be a statistic, the mean of a great many repeated and careful measurements, but it is closer to the theoretical and non-existent absolute than most medical statistics can attain. A discussion of the philosophy of quantum physics* puts it that the place of probability in Newton's or Einstein's mechanics was "solely in the theory of errors by means of which the accuracy of the Yes and No verification or nonconfirmation of the prediction of the theory was determined. Hence, the concept of probability and chance was restricted to the epistemological relation of the scientist in the verification of what he knows." Even if probability factors were thus dependent only on the limits and validity of human knowledge, there are certainly a few exceptional instances of medical statistics that are more reliable than some of the equations of the physicists. One might compare, for instance, a careful mortality report with Einstein's famous statement that atomic energy, measured in ergs, equals the mass involved, times the speed of light, in centimeters per

*Northrop, F. S. C.: In the introduction to: *Physics and Philosophy: The Revolution in Modern Science*, by Werner Heisenberg. World Perspectives, Vol. 19. Harper. New York. 1958.

second squared. This brilliant equation, however magnificently demonstrated, must be an approximation—a statistic—how close an approximation may be questioned by the medical scientist who has not heard of any precise measurements in either fission or fusion experiments.

Although, as one may see, the best medical data may be more reliable than some of the approximations of the purely physical sciences, scientific workers would agree—and the matter is probably capable of mathematical demonstration—that the generality of medical “facts and figures” are considerably less precise than those of various other disciplines. For medicine is a science that combines physical, biological, psychological and social science. It seems probable—again a conclusion not based on statistics but a reasonable guess, based on the complexity of the life process—that there are more unknown factors in physical medicine alone than in any other physical science except biology; and the unknowns in psychological and social science certainly outnumber those of the physical. Yet we can draw satisfactory conclusions from medical statistics. We can, for instance, predict from them, if not so accurately as might be wished, yet much more accurately than if we predicted from scattered and un-co-ordinated clinical observations.

If we recognize that statistical predictions are based on probability or chance, we all know that there are laws of chance, which are descriptive of observed phenomena like any other “natural laws.” Modern statistics cannot be properly used or understood without some knowledge of the phenomena of chance and the laws derived from them. Franzblau* illustrates the point. “Strangely enough,” as Franzblau* puts it, “whenever any trait or attribute occurring at random in nature is measured, the curve plotted from the distribution looks like the one in Chart E [the “bell-shaped curve”]. Whether it is the intelligence of men, the height of elephants, or the length of the leaves on a tree that we measure, the curve always looks very much the same when we plot it.

“This fact gives this curve its other commonly used name, the ‘curve of normal distribution.’ In such a curve, the frequencies are always the largest in the center, and then they spread out smaller like a bell, with very small frequencies occurring at both extremities.”

*Franzblau, Abraham N.: *Op. cit.*

The normal curve is thus the graphic expression of observation of nature, as $P=MF$ (in Newton's "second law of motion") is the mathematical expression of a similar observation. The basis of statistics is the mathematical expression of facts of nature in general. For instance, as Franzblau notes, the expression $\pm\sigma$ (or $-S.D.$ and $+S.D.$ summed) is derived from a mathematical function of the normal curve. It always represents 68.26 per cent of the area under the ideal curve, or 68.26 per cent of the frequency of "any trait found at random in nature." As Franzblau says, the fact that the value of $\pm\sigma$ equals 68.26 is as much a matter of observation and measurement as the more familiar $\pi=.31416$. (It might add to general regard for the reliability of sound statistical procedure to remind one's self now and then that the instruments it employs are as respectable mathematically as the approximation called π .)

Some of these remarks may have been too elementary for scientific readers; but one sometimes gets the impression that the medical writer, confronted with statistics, can forget he is a scientist—his idea of statistics is somewhat simplified. He collects figures, tabulates them, perhaps adds them up and calculates a few percentages, and Presto: statistics! Psychiatry would be better off with no statistics than with some tabulations of this sort. The medical writer owes it to his readers (and to his long-suffering editors, whose trials may have been unduly stressed here) to have at his command at least the fundamentals that Franzblau includes in his primer of statistics. The primer covers, in 150 pages, the why and the how of most statistics used in an ordinary medical paper. It gives the information most needed by the "statistics consumer," and a good deal of that needed by the "producer." It covers enough so that the alert student should learn at least what he is competent to do himself, and should recognize as well the point at which he needs professional statistical help.

The psychiatrist who has not had a course in statistics and is likely to do much writing (other than clinical reports) will, of course, need a broader background than Franzblau's little book affords. There are other excellent books available, and Franzblau lists some of them; naturally they are not substitutes for experience in working with a statistician, or for formal instruction.

Good statistics presented poorly are still another matter. Statis-

istics is a highly specialized profession with a language and ways of thinking of its own. The statistician often shares a frequent failing of other specialists in assuming that nonspecialists speak his language. Sometimes the difficulty with a psychiatric statistical paper that is prepared with the assistance of a statistician is that other statisticians can understand it, but the psychiatrists to whom it is addressed cannot. Where matters like first admissions, diagnoses and discharges are concerned, one may be willing to take a competent statistician's word for it; where the efficacy of a drug or a therapeutic procedure is concerned, one prefers to be able to follow the reasoning—sufficient cause for the reader to see that his own background is adequate.

But granting that readers might well be better informed than many of them are, the chief responsibility for seeing that psychiatrists can understand psychiatric statistical reports is the authors'. When psychiatrists and professional statisticians collaborate on a paper, they presumably keep each other informed until the manuscript is complete. The statisticians understand the psychiatrists' explanation of their problem; and the psychiatrists understand the statisticians' explanation of their procedures. But this happy situation may never recur in the article's editorial history.

On its way to publication, the manuscript is first seen by editorial readers. If it is primarily statistical, such a reader may be a statistician; but he is more likely to be a psychiatrist who may have to take the statistics on faith. The editor, who acts on his reader's recommendations, is sure to be a psychiatrist. If he decides to publish the paper, he may edit it or partially edit it himself; but it is more likely to be passed on to another professional, who is neither statistician nor psychiatrist, but a professional editorial worker, one of whose duties it is to see that the accepted manuscript is intelligible to psychiatrist readers when it is printed. Here is the last chance to close the gap between what the statistician understands from the statistics and what the psychiatrist will not understand from them. This editor has expert assistance on call, and he usually manages the job. But it is hard to think of an instance where the job would not have been better managed by better collaboration between the authors in the first place.

The paper with amateur statistics goes, of course, through the same process. To make it clear, one table must sometimes be

divided into two; tabular column headings may have to be translated into footnotes or vice versa; unnecessary columns may have to be eliminated; percentages may have to be checked and their bases indicated.

Tables and percentages are by no means all. There may be typists' errors in setting down facts and figures in the text as well as in the tables. There may be trouble with "averages." As we all know, and as too few of us recall when we should, the arithmetic mean is not the only "average." (It is not even the only mean, although the geometric mean is of less concern in elementary medical statistics, and the harmonic mean of less still.) There is the median, which may be a better measure than the mean under some circumstances; and there is the mode—which is approximately the "average" we talk about in such expressions as "the average man."

In such a medical situation as one where there is wide age dispersion among subjects selected for a test of a new drug, the median age (above which and below which 50 per cent of the ages in the group fall) may convey more meaning to the reader than the arithmetic mean. The modal age (the age around which the various ages tend to concentrate) may convey more still. As one of the excellent texts* available on medical statistics notes, the arithmetic mean "is often used when it should not have been used, when the median or mode should have been employed instead." When a paper deals with unspecified "averages," there is thus a frequent last-minute need for questioning the author, and sometimes a need for editorial plastic surgery.

Facelifting both professional and amateur statistics when indicated is an accepted part—if not a routine part—of scientific editorial work. The trouble with facelifting is that it is likely to show. It does not present the clear youthful aspect of successful original creation. If the scalpel slips in facelifting statistics, there may be a bad scar. Or stitches may pull. Sounder grounding in, and more care with, statistics in the original job could materially raise the level of American psychiatric writing.

Whatever the actual nature and scientific status of statistics may be, they are something that is basic to our kind of science. Most of our avenues of scientific progress would be barred without

*Croxtton, Frederick E.: *Elementary Statistics with Applications in Medicine*. 376 pages, with 14 appendices (tables) and index. Cloth. Prentice-Hall. New York. 1953.

them. Bernard's ideal of experimental medicine is capable only of limited application. It follows inexorably that, as Bernard puts it, "if a phenomenon appears just once in a certain aspect, we are justified in holding that, in the same conditions, it must always appear in the same way." But we know now, better than Bernard did, that one cannot insure that "a certain aspect" will reappear in "the same conditions" in a medical setting, for the human material we work with is so various that neither aspect nor conditions can ever recur—and be precisely the same. And we are utterly ignorant of many of the differences, to say nothing of the causes of them. Yet we can progress without Bernard's unattainable certainty, if we proceed on probabilities that are mathematically sound. With sound statistical and experimental procedures, we can identify the significant conditions or variables in our experimental and clinical situations, shrink the area of ignorance, and enlarge the area in which we may proceed with confidence.

But our progress will be stumbling indeed if we must depend for the needed statistics on the fellow whose mathematical foundations are still based on the belief that "the son of a bitch is four."

BOOK REVIEWS

A Primer of Statistics for Non-Statisticians. By ABRAHAM N. FRANZBLAU. 150 pages including index. Paper. Harcourt, Brace. New York. 1958. Price \$1.75.

A number of excellent books on scientific, particularly medical, statistics have appeared in recent years. Most of them are designed, as the author of this one remarks, for persons who will eventually use statistical methods and make statistical studies.

Dr. Franzblau's primer of statistics, however, is intended instead chiefly for the person who reads and interprets, but does not produce, statistics himself. Written by a psychiatrist, it is adapted to the use, study and understanding of students of psychiatry and allied disciplines. The author says that in its original edition it has been used for more than 20 years; and he notes that it grew out of experience in teaching the elements of statistics to medical, theological and other students under severe limitations as to time. Dr. Franzblau's primer, in fact, compresses an enormous amount of material into 150 printed pages, inclusive of an index and appendices. These include, among other things, a table of Chi-square values, a table of squares and square roots, directions for computing square roots and the "drop-nines" test for checking mathematical computations.

The reviewer thinks this is a very useful book and that it could be used for teaching how to perform simple statistical procedures, as well as for teaching the understanding of statistics. It is well worth placing in any library used by students of science.

Centaur. Essays on the History of Medical Ideas. By FELIX MARTI-IBANEZ, M.D. 714 pages including index. Cloth. MD Publications. New York. 1958. Price \$6.00.

The author of *Centaur* is a psychiatrist, a medical editor and a historian. His book is a compilation of short articles, notes and essays, many of which have appeared in the medical journal, *MD*.

Centaur is precisely what the subtitle indicates. Its topics range from the artist as physician, alchemist and traveler to the philosophy of organicism in psychiatry, the spirit of American medicine and the psychology of chess. One section is devoted to short and trenchant editorial comments from *MD*. There are subject and name indices and a bibliography. Dr. Martí-Ibáñez derives his title from the legendary Chiron, "the divine Centaur," who taught Aesculapius. The reader for diversion or information will find in this work everything from ancient Greek medicine to the quantum theory. It is a delightful and readable, as well as informative, book and it would make a good Christmas present to a medical man, in or out of season.

Clinical Neuroanatomy, Neurophysiology and Neurology: With a Method of Brain Reconstruction. Atlas III. By LOUIS HAUSMAN, M.D. 550 pages with 10 illustrations. Paper. 1958.

Atlases of the Spinal Cord and Brainstem and the Forebrain. Atlas I. First edition, fourth printing. By LOUIS HAUSMAN, M.D. 64 pages with 50 illustrations. Paper. 1957.

Atlas of Consecutive Changes in the Reconstruction of the Nervous System. Atlas II. First edition, third printing. By LOUIS HAUSMAN, M.D. 84 pages with 71 illustrations. Paper. 1957.

Thomas. Springfield, Ill. Prices: Text (Atlas III), \$9.75; Atlas I, \$2.00; Atlas II, \$2.75.

Dr. Hausman has used this text as a handbook for teaching undergraduate and postgraduate students, and it has been favorably known for many years for its completeness and didactic qualities. It is now published for the wider circle of all students of the subject.

The *Atlases* represent the patterns or blueprints for the "do-it-yourself" method of reconstruction of the nervous system, spinal cord, brainstem and forebrain, with colored clay, wire mesh, colored wires and framework. (Brain reconstruction kits are available from the Clay-Adams Co., Inc., 141 East 25th Street, New York 10, N. Y.) Many teachers have long favored this method of teaching neuroanatomy and neurophysiology, by letting the student "reconstruct" the structures just after they have been discussed in formal lectures. The student works in three dimensions until he has a complete model of the nerve and brain structures concerned. The reviewer would note that the value of this method for general teaching is still debated in spite of having certain advantages for specific types of students.

Dr. Hausman's textbook is clearly written; neurologic, physiologic and clinical aspects of his subject are well integrated. It follows the generally-approved textbook pattern, has excellent schematic drawings, and will be a very useful teaching tool. The student should find it a fine supplement to the formal lectures and other formal instruction at medical school.

Frontiers in Science. EDWARD HUTCHINGS, JR. editor. 362 pages including index. Cloth. Basic Books. New York. 1958. Price \$6.00.

Specialists from a wide segment of the scientific disciplines contribute to this authoritative book. They cover numerous aspects of what the dust cover calls appropriately the "growing edge" of research. There is adequate coverage of biology, although both psychology and psychological medicine could have done with more discussion. In psychology there is, however, an unusual and fascinating "case study of innovation"—by a historian. This book is carefully edited; it would be useful for reference; and some chapters could be used for teaching.

Acta Neurochirurgica, Supplementa I. II. III. V—**I. Die Differentialdiagnose der Gehirngeschwuelste durch die Arteriographie** (Differential Diagnosis of Brain Tumors by Arteriography).

By DOZ. DR. MARIO MILLETTI, director "C. Cavina" Institute for Neurosurgery, Bologna. VI and 79 pages, including bibliography and summaries in German, English and French. With 64 plates of arteriograms and three text illustrations. Paper. 1950.

II. Die Psychiatrie der Hirngeschwuelste (The Psychiatry of Brain Tumors). By DOZ. DR. MED. HANS WALTHER-BUEL, University Hospital for Psychiatry, Zurich. VII and 226 pages, including preface by H. Krayenbuhl and M. Bleuler. Paper. 1951.**III. Roentgendiagnostische Probleme bei intrakraniellen Geschwuelsten. Electroencephalographie und Corticographie bei cerebralen Krampfleiden** (Problems of X-ray Diagnosis of Intracranial Tumors. Electro-encephalography and Corticography in Cerebral Convulsive Disorders). Report of seventh annual convention of the German Society for Neurosurgery, and report of the first meeting of the Austrian Workshop for Electro-encephalography. Bad Ischl, September 6-11, 1954. VI and 374 pages, including bibliography and 196 illustrations. 1955.**V. Die Psychiatrie der Hirntumoren bei Kindern und Jugendlichen** (The Psychiatry of Cerebral Tumors in Children and Adolescents).

By PRIV. DOZ. DR. MED. ROBERT CORBOZ, head physician, Psychiatric Clinic for Children and Adolescents, Zurich. VI and 100 pages, including index and bibliography, four tables and one graph. 1958.

Springer. Vienna. Prices to *Acta* subscribers: Vol. I, \$5.00; II, \$4.20; III, \$15.20; V, \$3.20; prices to general purchasers: Vol. I, \$5.60; II, \$4.70; III, \$17.40; V, \$3.55.

These monographs are outstanding contributions for thoroughness, completeness and scholarly presentation. Specialists in their respective fields offer their own experiences and reviews of the entire world literature on the complex and space-consuming subject of brain neoplasms and lesions. The studies cover diagnostic, clinical and prognostic aspects; and these monographs are sure to become indispensable reference and study material for the neurologist and psychiatrist who read German. Volume II, in particular, deserves the close attention of psychiatrists because of the fact that the author, Dr. Walther-Büel, goes thoroughly and deeply into the physiologic and psychodynamic bases of the mental processes observed during, or because of, the occurrence of tumors in the brain. This effort to analyze—from every neurologic as well as psychiatric aspect—the interrelationships of organic brain diseases and mental disorders is so successfully carried through the reviewer wishes it could be translated for the

benefit of those unfamiliar with the German language and German scientific terminology. It would however require a new edition or at least additional discussion in the light of recent studies in neuropharmacology.

A Handbook on Mental Illness For The Catholic Layman. By DANIEL J. SHEA, Ph.D. 103 pages. Cloth. Vantage. New York. 1958. Price \$2.95.

Dr. Shea is secretary of the New York State Department of Mental Hygiene. He is thus well informed on modern psychiatric methods and treatment as well as on the religious tenets on which this book is based. It appears under the *Imprimatur* of the Roman Catholic bishop of Albany and it has a brief foreword by James A. Farley, as an outstanding Catholic layman.

Dr. Shea's main point in this book is that there is no conflict between Roman Catholicism and psychiatry. It is an excellent point and one that needs to be made—in view of widely-publicized assertions to the contrary. It would be well if the same point could be made clear, as simply, for members of other religious sects. It should be noted that the *Imprimatur* of the church does not convey agreement with all points of the book but merely warrants that they are not in conflict with Catholic doctrine. This reviewer wishes that Dr. Shea had pointed out more plainly that his discussion of sex education is from the strictly religious point of view. He also questions the amount of conflict that Dr. Shea sees between psychoanalysis and Roman Catholicism. He says: "Freudian psychoanalysis is bad; Catholics cannot accept it." The reviewer knows of several eminent Catholic psychiatrists who have made wide use of Freudian principles, and he suggests that a less sweeping condemnation would have been in order. Despite this criticism, the reviewer thinks the book is to be recommended for the purpose for which it was written—to explain psychiatry to persons who may have ill-founded religious prejudice against it.

Psychiatric Aspects of Juvenile Delinquency. By LUCIEN BOVET, M.D. 90 pages. Paper. World Health Organization. Geneva. 1951. Price \$1.00.

This is a World Health Organization publication that packs a lot of information for about a penny a page.

It runs a whole gamut of topics related to the subject. Besides the early chapters dealing with the concepts of juvenile delinquency, present knowledge, and etiology, there are chapters dealing with the social, somatic, constitutional, community and psychological factors. Various treatment methods are also presented.

This is valuable for workers specifically interested in juvenile delinquency, but it also has a great deal of information for other psychiatrists, social workers, and psychologists.

A Classified Bibliography of Gerontology and Geriatrics. Supplement One, 1949-1955. By NATHAN W. SHOCK. XXVIII and 525 pages including preface, introduction, table of contents, abbreviations of journals cited, index of authors, index of subjects. Cloth. Stanford University Press. Stanford, Calif. 1957. Price \$15.00.

This classified bibliography of 15,983 references is an amazing piece of painstaking scientific research. In view of the growing importance and interest in geriatric research, it represents an extremely valuable tool for all libraries and all workers in the field. It cannot be subjected to detailed review. The presentation and print are excellent.

Mental Health in Industry. By ALAN A. McLEAN, M.D., and GRAHAM C. TAYLOR, M.D. XVI and 262 pages. Cloth. McGraw-Hill. New York. 1958. Price \$6.50.

This book "is written as a guide for people at various levels of management who formulate policies and procedures which affect the mental health of their employees." After a brief introduction setting forth basic psychiatric principles, the authors enter into their main topic, the industrial application of mental health. The stress is almost completely on maintenance of mental health, with little of the dynamics being presented. Various problems related to management are covered, and the role of the psychiatrists is explained.

This reviewer feels the authors have accomplished their purpose very well. While the material covered is rather too simplified to be useful to students of psychiatry, there is a definite need of a book clearly explaining the function and importance of mental health in the industrial setting.

Variations in Sexual Behavior. By FRANK S. CAPRIO. 317 pages. Cloth. Citadel. New York. 1955. Price \$5.00.

This is an interesting, though uneven, book; the author is Stekelian, with some eclectic leanings. The result is that old and discarded standbys are combined with the newest conclusions by psychoanalytic authors. Unfortunately, the ingredients do not always match, and inconsistencies result.

Scoundrels, Fiends and Human Monsters. By CLIFF HOWE. 254 pages. Paper. Ace. New York. 1958. Price 35 cents.

The affect-laden words of the title of this book are unfortunately an excellent indication of its character. The author has collected material on the lives of 15 of the world's most notable scuts; but he has put it together without discrimination and without psychological understanding. He gives gossip and unsubstantiated reports as much weight as legal evidence. There are, for instance, reports based on ecclesiastical trials where, by the nature of the trial, no defense could be presented. The volume is of use only as a short listing of particularly vicious criminals.

Sigmund Freud: Man and Father. By MARTIN FREUD. 218 pages. Cloth. Vanguard. New York. 1958. Price \$5.00.

If this book were not the story of a genius and his family, it could be described as a charming tale of childhood and youth in Austria at the turn of the century. The Freuds planned their lives for their children. In his old age, Martin Freud writes of the strawberries and mushrooms and mountain lakes of his childhood vacations. Holidays, he says, remain much more vivid than school days.

The Freud children were not the traditional psychiatrist's children. Little in their bringing up seems vastly different from what could have been found in the family of any reasonably successful professional man of Freud's day. If Freud applied some of the theories of sex education which his followers have advocated, Martin does not dwell on them. In fact, he remarks, of an instance where the children did not know the difference between a bull and a bullock, that his father muttered something about their need for information but did not supply it.

The story goes from the childhood of Freud's oldest son through the boy's service in the Austrian army in World War I and—sketchily—through the days following, until his father's exile to escape the Nazis. Anti-Semitism, it appears, was not encountered for the first time when the Nazis brought their particularly virulent variety to Austria. Martin's story is full of incidents of it. These, it should be noted, are reported with unemotional impartiality. This is an appealing book and one well worth the reading for its view of a vanished society—aside from the light it casts on Freud's personality.

The Insolent Chariots. By JOHN KEATS. 233 pages. Cloth. Lippincott. Philadelphia. 1958. Price \$3.95.

The Insolent Chariots is a study of the manifest content and some of the latent content of the great American dream, the automobile. Mr. Keats thinks that the naïve American fell in love with the early automobile and married the thing "so he did not live happily ever after." He discusses in light language and serious purpose what is wrong with the too costly, overdecorated, overpowered, unsafe modern automobile. The title of the chapter covering the manufacturers' relations with their dealers and of the dealers with the public is a pointer to the spirit of the thing—"S.O.B. Detroit."

Keats thinks there are signs of reform, that Detroit is on the way toward building smaller cars, even though it seems to have missed the point that European small cars are popular because of "honest price" and "quality." Any automobile owner, let alone anybody acquainted with mass psychopathology, should get a large kick from this book.

Otto Rank. By JESSIE TAFT. 299 pages. Cloth. Julian Press. New York. 1958. Price \$6.50.

Jessie Taft, a longtime friend and co-worker of Otto Rank, has compiled a biographical study based on notebooks, records, scientific writings and her personal recollection. Rank left the Freudian movement over the issue of how much significance should be attached to the trauma of birth and of how vitally it should affect psychoanalytic practice. The viewpoint of orthodox psychoanalysis is well known. Professor Taft presents Rank's side of the case. She also does something toward reconstructing the story of a life about which Rank himself was reticent, bringing his personal history down to his death in California in 1939.

The author frankly notes that her account has omissions. She says she has no knowledge of Rank's "love life," about which he was "incredibly reserved," as about all personal relationships. Her book, however, does give the material for obtaining a perspective of Rank, his work and his ideas. It appears to be written with the utmost care and to be completely authoritative. It includes a list of Rank's published works. The author is the official translator of two of Rank's books, and the reviewer thinks her present contribution is a valuable one.

The Measurement and Appraisal of Adult Intelligence. 4th edition. By DAVID WECHSLER. 297 pages, including index. Cloth. Williams and Wilkins. Baltimore. 1958. Price \$5.00.

As stated in the preface, this edition, like previous editions, centers around the theory, findings and applications of the author's Adult Intelligence Scales, but its scope, as well as its contents, has been considerably extended.

The present volume does not include any manual of tests. However, it contains 236 pages, in comparison to 167 pages in the third edition, if one excludes the actual test. The chapter on "The Need for an Adult Intelligence Test" has been omitted. The bibliography has been extended to 577 entries and includes more than six pages of author index. Five important new chapters have been added; they are "Factorial Composition of the Wechsler Bellevue I and the WAIS," "Changes in Intellectual Ability with Age," "Sex Differences in Intelligence," "Changes in Intelligence Consequent to Brain Damage" and "The Use of the W-B I and the WAIS in Counseling and Guidance."

The chapter on diagnostic implications has been greatly expanded and improved, and the chapter on "nature of intelligence" clarified. In this volume, the author is much more definitive than formerly in his conclusions, and the book is much more meaningful both quantitatively and qualitatively.

Molière. By RAMON FERNANDEZ. 212 pages including index. Cloth. Hill and Wang. New York. 1958. Price \$3.75.

Molière is frequently rated as second only to Shakespeare in drama of the modern era. M. Fernandez attempts in this small book to recreate Molière's personality and character from his plays. A point of particular interest to psychiatry is the discussion of whether Molière married his own illegitimate daughter; a public charge that he did was made against his widow. Fernandez seems to think it possible. The reader of this volume will get a fascinating view of a glittering period of French society and of the principal literary figures in it. Unfortunately, the book does not deal with Molière's motivation, which might be difficult to reconstruct from his plays. It also does not deal extensively with Molière's hatred of the medical profession, although there is a suggestion that his own incurable illness had something to do with this paranoid attitude.

An Introduction To The Study of Experimental Medicine. By CLAUDE BERNARD. 226 pages. Paper. Dover. New York. 1958. Price \$1.50.

This short book is said to be the only major work, which is available in English, by the great French medical pioneer. Bernard was a great physiologist, a founder of biochemistry and one of the most important figures in furthering the transition of medicine from art to science.

This small book covers much of his personal philosophy besides his guiding principles. Some of his views in disparagement of medical statistics would be considered extreme today; but they are expressed with forceful observations that are well worth considering in a time when statistics are often abused. Bernard's book is a sketch of the foundations of modern medical science, and the reviewer believes it belongs in any doctor's library.

Nothing Like Science. By MAGNUS PYKE. 172 pages. Cloth. St. Martin's. New York. 1957. Price \$4.00.

This is a light-hearted but by no means superficial discussion of modern science and its aims. Professor Pyke feels that there should be more stress on the differences between science and invention and between technologists and scientists. The true scientist, he feels, has a philosophy. Science is more than inventing useful things. It is a way of finding out the truth. From this frame of reference, he discusses such matters as automation, food (including the eating of insects) in an age of increasing population, chemical fertilization, microbe chemistry, air, the living cell, and sleep. This book is to be recommended to any student of medical or general science or to any active scientific worker.

Physics and Philosophy: The Revolution in Modern Science. By WERNER HEISENBERG. xv and 206 pages. Cloth. Harper, New York. 1958. Price \$4.00.

Physics and Philosophy constitutes volume 19 in "World Perspectives," a series of brief books on extensive subjects covering a wide range of fields and presenting "the world community of ideas." Among the contributors so far have been Konrad Adenauer, Erich Fromm and Paul Tillich. The present volume contains an introduction by F. S. C. Northrop which states that the material of the book was read in 1955-1956 as the Gifford Lectures at St. Andrews. Northrop loses no time in putting his finger upon the reason why Heisenberg is considered important by most readers—because he is identified with the principle of indeterminacy—a consideration of no small importance to the psychiatrist if he considers (as has been done by at least one very well-known psychiatrist) that physical indeterminacy is identical with, or is the basis of, freedom of the will.

The reasoning runs somewhat as follows: "If determinacy is absolute, the outcome of this patient's condition is already predetermined, but if it is not, I and he have a chance to alter the state of affairs." Such a position seems to the present reviewer not only to confuse the physical principle of subatomic indeterminacy with the philosophical concept of freedom of the will but also muddies the issue of therapy to the extent that it ignores the possibility that the presence of the patient in the psychiatrist's office may in itself be a selective (determinant) factor which isolates this particular case from others which may, consequently, be considered less accessible—at least in the aggregate.

The principle of uncertainty, as it is usually called by physicists, has been attacked by physicists, psychologists and philosophers; but, at the present time, most physicists hold it to be operative at the subatomic level and meanwhile avoid the implication that this has any very direct bearing upon macroscopic concepts. Matter may appear to be penetrable at the meson level but physicists have not yet been observed trying to enter their laboratories without first opening the doors—or, if they have tried, the reader may have made their acquaintance.

In *Physics and Philosophy* Heisenberg has presented, in nontechnical language, his personal viewpoint of both the physical and philosophical implications of his approach to subatomic physics. This is a difficult task and throws into unguarded relief the purposive strivings of the expositor. No one will quarrel with Heisenberg's right to present a highly personal opinion about where physics is headed (toward the objective demonstration of time reversal) but fault has already been found (Rudner, R.: *Physics and Philosophy*. Science, 128:649-650, 1958) upon both factual

and methodologic grounds, with Heisenberg's venture into the area of professional philosophy which, while engaging, is far less compelling at the intellectual than at the emotional level.

Down There. (*Là-Bas*.) A Study in Satanism. By JORIS-KARL HUYSMANS. 317 pages. Cloth. University Books. New York. 1958. Price \$5.00.

Down There is a fictional treatment of what appears to have been an actual experience of Huysmans in Paris of the last century. Its translation is important for any worker in psychopathology, because it not only reflects the author's personal aberrant trends but gives a clear description of the actual details of devil-worship a century ago. The characters in *Là-Bas* are very thin disguises of actual personages whose names are known and who are identified in Robert Baldick's introduction. They apparently believed literally in the infamies confessed by Gilles de Rais in 1440, and they attempted to reproduce those satanic rites, with the exception of wholesale child murder.

This book is of further interest in that threats by John S. Sumner of the Society for the Suppression of Vice against the original publishers in 1924 led to its withdrawal. Sumner agreed not to prosecute booksellers and the publishers melted the plates. The reader may well wonder whose morals would have been endangered by this unattractive presentation of sexual and religious aberration.

A Pictorial Anthology of Witchcraft, Magic & Alchemy. By EMILE GRILLOT DE GIVRY. 395 pages including index and 376 illustrations. Cloth. University Books. New York. 1958. Price \$10.00.

De Givry's work is a "complete reproduction" of a translation from the French, first published in England in 1931. It could be described as an illustrated guide to demonology and magic. Its three "books" are devoted to sorcerers, magicians and alchemists. The book of sorcerers covers devil worship; that of magicians ranges from astrology to the tarot cards, and the discussion of alchemy covers the secret doctrine of the alchemists and makes plain the distinction between them and "the puffers," to whom we may owe as much in the way of modern science as we do to the alchemists themselves.

This is an invaluable source book. It also gives many clues to the workings, not only of the medieval mind, but to the mental processes of many persons today who may range from the psychotic to the merely superstitious.

A Physician Looks at Psychiatry. By JACQUES M. MAY, M.D. 189 pages. Cloth. John Day Company. New York. 1958. Price \$3.50.

A Physician Looks at Psychiatry is a thoughtful book which, in the reviewer's opinion, is misrepresented on the dust cover as "a doctor tells laymen what is wrong with psychiatry." Dr. May was a research scientist, living in New York City, when his wife gave birth to twin sons who proved to be mentally defective. The stricken father sought help from psychiatry, failed to get very much, and came to the conclusion that "Psychiatry was just not a part of medicine." From this conclusion as a premise, he reaches the further conclusion, stressed in this book, that what psychiatry needs is more and harder work in physical research.

This is not a radical attitude; great numbers of psychiatrists would agree with the author, and the presentation of his viewpoint is reasonable. Though many neglect, nobody denies, the physiological basis of mental functioning. The reviewer would take issue with the author only by stressing the point that the relationship of structure to function is still most unclear—so unclear that much research is needed into this relationship itself before other inquiry can have a better than empiric basis. More research funds are needed even now, of course, but physical research, and well-financed physical research, is actually being carried on in most of the directions that present-day psychiatry can justify.

Dr. May is well acquainted with psychiatry today. He himself has been in charge of a private facility for mentally defective children. The reviewer thinks that his book should be read, not by the layman who wants to know what is wrong with psychiatry, but by psychiatrists themselves, and many of them. This recommendation is made in spite of the unfortunate contrast in the title between medicine and psychiatry, a contrast calculated to suggest to the ignorant that psychiatrists are not medical doctors.

Hamlet's Mouse Trap. A Psychoanalytical Study of the Drama. By ARTHUR WORMHOUDT. 221 pages with appendix and references. Cloth. Philosophical Library. New York. 1956. Price \$3.50.

Arthur Wormhoudt, basing his work on Edmund Bergler's psychodynamic concepts, has contributed previous thoughtful and stimulating works on the psychoanalytic interpretation of literature, notably *The Demon Lover*, a remarkably provocative study. In the present volume, he attempts to apply similar concepts to Shakespeare—with equivocal results.

Hamlet's Mouse Trap includes some extraordinarily penetrating suggestions—not all necessarily personal to the author. A play is seen as corresponding—in its three or five acts—to the concepts of the three-layer or five-layer outlines of the developmental structure of the human mind.

Although comedy is commoner than tragedy in ordinary life, "in literature the opposite is true. . . the dramatist . . . is describing the wish-to-suffer in such a way that conscience mistakes a substitute form of self-destruction for the real one." The five-layer pattern of sublimation (or of mental development) can be applied to *Hamlet*. Shakespeare possibly suffered from writers' block; numerous passages are cited in support; and after writing *The Tempest* (the last play which was wholly his work and which Wormhoudt ascribes to him when he was 44) the great dramatist lived seven or eight years.

The reviewer thinks, however, that the bulk of Wormhoudt's discussion does not reach the level of this criticism. When the author actually attempts to discuss *Hamlet* against "a background of [psychoanalytic] ideas concerning the nature of language and some of the special characteristics with which artists endow it," he is difficult to follow and sometimes unconvincing. He writes as if the play were constructed consciously on the Bergler five-layer model, although, of course, Wormhoudt himself considers that any such structure is unconscious. The reviewer also thinks that, in piling detail on detail and attempting to interpret the whole, the author has tried to do too much—that his overdetermination obscures and confuses the thesis.

Dear Abby. By ABIGAIL VAN BUREN. 201 pages. Cloth. Prentice-Hall. New York. 1958. Price \$2.95.

Anybody who had suggested 20 years ago that an "advice to the love-lorn" column could be good mental hygiene would have risked being hooted out of psychiatric society. Professionals acquainted with today's "Dear Abby" could testify to a different situation. Abby's newspaper-column advice not only appears generally harmless but would receive a large measure of professional approval. Her usual advice on drinking problems, for instance, is to resort to Alcoholics Anonymous. But she comments that psychiatric help is often needed too and that she is skeptical on the whole of advising people in these circumstances.

Dear Abby is a book collection of some of the gems in Abby's syndicated newspaper column, with her own comments on the correspondence and her answers. People write to Abby about subjects some would hesitate to discuss with a psychiatrist, and often give details that a psychiatrist would have trouble dragging out of them. Abby's advice is not only good mental hygiene as a rule, but is pungent, piquant and frequently extremely amusing. The reviewer thinks most psychiatrists and psychologists would enjoy her book and might even find something to ponder about in the way Abby handles her problems.

A Woman Doctor Looks at Love and Life. By MARION HILLIARD. 181 pages. Cloth. Doubleday. New York. 1957. Price \$2.95.

The views offered here are those of a Toronto obstetrician, who has recently died. Unfortunately, her views cover some attempts at primitive psychotherapy that fall short exactly where psychological knowledge is necessary. She is psychiatrically uninformed about fear, impotence, frigidity and postpartum depression. One also finds peculiar opinions, such as: "The husband [of a woman who believes that the menopause ends sex] has two alternatives: he can become a celibate. . . , or he can seek a younger woman, as thousands of middle-aged men do." Despite lack of psychiatric sophistication, however, there is the following interesting sentence: "I have discovered during the years that I have been treating women's ailments, the real and imaginary ones, that childhood has mighty power to maim an adult." Of course, she had a predecessor—a man called Sigmund Freud.

The Black Obelisk. By ERICH MARIA REMARQUE. 434 pages. Cloth. Harcourt, Brace. New York. 1957. Price \$4.50.

It is a painful experience for any reader (or reviewer) to be confronted with a boring book when the author is one he has admired. That is the case with *The Black Obelisk* by the author of *All Quiet on the Western Front*, *Flotsam*, and *Arch of Triumph*. One may wonder if the author has not used material from his early days, once discarded. This suspicion is based on the topic (inflation in Germany after the first World War), and the fact that certain points in the author's biography (Remarque was once a tombstone salesman and a part-time organist in an "insane asylum") coincide with the problem of the book.

Child of Our Time. By MICHEL DEL CASTILLO. 281 pages. Cloth. Knopf. New York. 1958. Price \$3.75.

This is the first book this reviewer has seen, though there may have been others, in which the terrible happenings of the Nazi concentration camps are revealed through the eyes of a child. Tanguy, the author's "child of our time," half-Spanish and half-French, spends most of his boyhood in the camps, finally reaching a Spanish reform school, from which he later escapes. Through the years of misery the child occasionally finds a helping hand; and, after many agonizing experiences, he returns to France, the country he loves best. The reader leaves him with the feeling that instead of the hate one might expect, he has a love for mankind and for life itself. Almost certainly autobiographical, the story is simply and movingly told, the characters are plausible, and Tanguy and his friends quite unforgettable.

Perceptanalysis. By ZYGMUNT A. PIOTROWSKI, Ph.D. 505 pages including index. Cloth. Macmillan. New York. 1957. Price \$6.75.

Students and users of the Rorschach examination have long been awaiting this definitive book by Piotrowski. It is a distinguished piece of work, dedicated primarily to the clarification of concepts concerning the purpose and use of the Rorschach. The author notes a tendency on the part of some users of the test to slip back into pre-Rorschach days and place the main weight of interpretations on content. Content, he agrees, is important; but the precision of the Rorschach as a clinical instrument is in the other information which it gives about the subject. The examiner who neglects the protocol as a whole to concentrate on the content of the specific percepts might learn as much from a word-association test.

This volume covers all aspects of the Rorschach thoroughly. It gives not only the author's own ideas which, as in the instance of shading responses, vary from others in general use; it outlines the theories of other important workers in the field. There is a total of 180 books and articles referred to. In the index, there are 26 references to Oberholzer, 16 to Klopfer, 12 to Beck, 4 to Harrower and 3 to Grassi, to cite a few at random. The theoretical discussion is followed by illustrative case studies.

The reviewer thinks the clinical psychologist and the psychiatrist who uses the Rorschach will find this book indispensable.

Physical Dynamics of Character Study. By ALEXANDER LOWEN, M.D. 358 pages including index. Cloth. Grune & Stratton. New York. 1958. Price \$7.75.

This is a book about "bio-energetic analysis" and bio-energetic therapy. Although the author emphasizes his debt to Wilhelm Reich for some of the theories of bio-energetics, he points out that bio-energetic therapy is independent of, and differs from, Reich's theories and techniques in many respects. It also differs from traditional psychoanalytical techniques, because "the study of the patient is unitary. The bio-energetic therapist analyzes not only the psychological problem of the patient as will every analyst, but also the physical expression of that problem as it is manifested in the body structure and movement of the patient. Second, the technique involves a systematic attempt to release the physical tension which is found in chronically contracted and spastic muscles."

Part One of the book is devoted to "bio-energetic interpretation" of many of Freud's theories, to the bio-energetic concept of the instincts, to bio-energetic principles in analytic thinking, and to analysis of character formation and structure. In Part Two the specific dynamic factors which determine character types are discussed and illustrated by means of case histories; and bio-energetic therapy is expounded.

Adam's Rib. By ROBERT GRAVES. 73 pages with illustrations. Cloth. Yosel-off. New York. 1958. Price \$6.00.

This book has the general interest for students of human behavior that is inherent in all religious ideas. It is of particular interest to anyone whose psychiatric studies have led him to readings in comparative religion. Robert Graves is a poet and a classicist rather than a professional archeologist or anthropologist. He believes that many ancient and modern religious concepts arose in remote times when new peoples attempted to use and explain religious art which they did not understand—perhaps because of difference in languages.

In this very short book, Graves has attempted a reconstruction, by this thesis, of what he thinks may have been the story of creation from which Genesis is derived—a tale compounded of both Mesopotamian and Greek mythological material. To illustrate the "iconotropy," James Metcalf has prepared wood engravings of what the pictures used by the predecessors of the Hebrews may have been. Graves suggests that Genesis owes its present form, not only to misunderstanding of the individual pictures, but to misreading their order as right to left in all lines, instead of *boustrophedon*, or right to left and left to right in alternate lines. The book is a *tour de force*. Whether the argument is sound or not, the thesis is brilliantly written and illustrated, and no person interested in religious origins will want to miss it.

The American Communist Party. By IRVING HOWE and LEWIS COSER. 593 pages including index. Cloth. Beacon. Boston. 1957. Price \$6.75.

Howe and Coser here outline what might be called the public life of the American Communist party. They do not go extensively into the psychology of Communism, although the psychological background of the popular front is taken up. The outline covers the public accounts of the party and such of its private affairs as are matters of record, from 1919 through the popular front, the ill-fated alliance with Wallace and what the authors call the party's "virtual demise" in 1957. This book seems as objective as its non-Communist authors could make it. It should be a valuable reference work for anybody in any branch whatever of social science.

The Hard Sell. By DAVID DELMAN. 253 pages. Cloth. Messner. New York. 1958. Price \$3.95.

The Hard Sell is a novel about the lingerie business and two brothers whose sibling rivalry the author sets out to clarify. The reviewer thinks that the author is not only a particularly bad writer but that he neither clarifies the intricacies of the lingerie business, nor has the slightest idea of the psychological implications of sibling rivalry.

Unheard Witness. By ERNST HANFSTAENGL. 317 pages. Cloth. Lippincott. Philadelphia. 1957. Price \$4.95.

"Putzi" Hanfstaengl is of mixed German and American extraction. He is a Harvard graduate and was once something of a figure in certain social circles. He joined Hitler early; he helped him rise to power as his foreign press chief; and his report of Hitler in the early days seems unemotional and unregretful. Fortunately for himself, he lost favor with Hitler and fled from Germany in advance of catastrophe. This book contains much material of political and psychological interest. Hanfstaengl attempts some amateur psychiatry to the extent of attributing some of Hitler's behavior to his sexual impotence. He implies that Hitler used a dog-whip on his niece, Geli, whose suicide was so sensational, and that there was some form of perverted incestuous relationship there.

Few Americans are likely to think that Hanfstaengl reveals himself as an attractive figure. As for his general "revelations," their value will depend very much on assessment of the reliability of the author's memory and interpretations.

Twelve Horses and the Hangman's Noose. By GLADYS MITCHELL. 236 pages. Cloth. Michael Joseph. London. 1956. Price \$3.25.

No special knowledge of horses is required to enable the reader to enjoy this tale of murder in a riding-stable. With its brilliant dialogue and excellent characterization, this suspenseful thriller once more proves Miss Mitchell's versatility and her ability to make a routine who-dun-it into a piece of real literature. The author's usual sleuth, her extraordinary psychiatrist, Dame Beatrice Bradley, solves the mystery.

The Blanket. By A. A. MURRAY. 192 pages. Cloth. Vanguard. New York. 1957. Price \$3.50.

This is the author's first fiction of book length. The reviewer hopes it will not be his last.

It is a tale of South Africa, of the clash between primitive African and civilized justice. The story is simply and movingly written. It is an excellent psychological novel and as suspenseful and dramatic a story as has come out in recent years.

Death at Flood Tide. By LOUIS A. BRENNAN. 191 pages. Paper. Dell. New York. 1958. Price 25 cents.

The author parades his knowledge (obviously book knowledge) of psychiatric terms, ad nauseam, through this highly melodramatic tale, whose characters are fantastically unreal.

ESP and Personality Patterns. By GERTRUDE RAFFEL SCHMEIDLER and R. A. MCCONNELL. 136 pages including index. Cloth. Yale University Press. New Haven. 1958. Price \$4.00.

This work by professors Schmeidler and McConnell covers experimentation in ESP at Harvard and CCNY. The conditions appear to have been controlled strictly, and the statistical treatment is rigorous. The main inquiry in this volume is whether a receptive attitude toward ESP affects ESP ability. The authors found that good results go with interest in obtaining good results—not with general interest in the progress of ESP. There are some interesting but apparently limited correlations between successful experimenters and certain types of Rorschach protocols.

Adventures in Science at the Smithsonian. By E. JOHN LONG and GEORGE WEINER. 24 pages. Paper. Smithsonian Institution. Washington, D.C. 1958. Price 25 cents.

The Smithsonian Institution produces this small and beautiful booklet for the young person who is interested in becoming a scientist. It illustrates—with photographs and drawings of Smithsonian exhibits—paleontology, anthropology and archeology, zoology and the modern engineering sciences which depend on the harnessing of power. These latter range from Fitch's steamboat to rocket flight.

The booklet is slanted toward the grammar school graduate; and there are reductions from the single-copy price for orders in quantity.

Existence. ROLLO MAY, editor. 445 pages including index. Cloth. Basic Books. New York. 1958. Price \$7.50.

Existence is a survey, exposition and textbook of existential analysis.

Readers of this journal will find it a much wider and more detailed treatment, but one otherwise similar to, the recent articles on the subject by Eugen Kahn. Existential analysis is basically psychoanalysis modified by and rooted in the philosophy of existentialism. It has had wide application in Europe in recent years and is attracting increased attention in the United States. Both the psychoanalyst and the general psychiatrist should find this excellently edited and comprehensive volume informative and useful.

All But My Life. By GERDA WEISSMANN KLEIN. 246 pages. Cloth. Hill & Wang. New York. 1957. Price \$3.95.

A moving and well-written book is the work of a woman who survived the infamous Nazi concentration camps. It is a reminder to those who are too eager "to forget."

Children of the Kibbutz. By MELFORD E. SPIRO. 500 pages including index. Cloth. Harvard University Press. Cambridge, Mass. 1958. Price \$10.00.

The *kibbutz* can be described, perhaps inaccurately, as a small commune that is one characteristic form of organization in the new state of Israel. There are numerous such structures set up by early socialist immigrants. The children of the *kibbutz* are raised communally, brought up in communal nurseries where their parents are merely visitors, and schooled in the same institutions. Spiro, with his wife's assistance, has made a serious anthropological study of the *kibbutz* with attention chiefly focused on the *sabras*—children and young people born and brought up in the communal organization.

It is not surprising to have Spiro say "that hostility, introversion, and an intense need for affection and approval are symptoms of insecurity. And since this syndrome is a generic *sabra* characteristic, we may assume that *kibbutz* culture systematically provides them with experiences that give rise to these characteristics. . . . this syndrome is not characteristic of the *sabra's* parents. . . ." Spiro finds that the observation holds despite few physical privations, lack of severity in weaning and in toilet training, and a great amount of permissiveness in sex training. And the *kibbutz* mothers visit the nurseries to nurse their babies at the breast.

Spiro's book is a carefully done piece of anthropological research and is psychiatrically oriented. The reviewer, however, would like to see a depth study of the *sabra*, particularly since Spiro concludes that "once the barriers of introversion and hostility are penetrated—[the *sabra* is] a warm, sensitive, and in some instances, gracious human being."

Paul Gauguin's Intimate Journals. Translated by VAN WYCK BROOKS. 254 pages. Paper. Indiana University Press. Bloomington. 1958. Price \$1.95.

Most persons who are not of the art world think of Paul Gauguin as a psychopath who—in middle age—abandoned his family and his business in France to go to the South Seas and paint exotic subjects. His journals suggest that there is an element of truth in this but it is far too sweeping a conclusion and is far from the whole story.

The present edition, translated by Van Wyck Brooks and originally published in 1936, has a preface by Emil Gauguin, defending his father's reputation. The journals themselves reveal much cynicism toward the plastic arts, the theater, marriage, religion, politics and human nature in general; and they are full of sadistic comments. Any psychologist should find them of interest. Besides what they show of Gauguin's personal life, they include much other material of interest to the student of abnormality. For instance, there is a detailed account of the famous incident in which Van Gogh sliced off his ear and presented it to a prostitute.

Mental Disorders in Later Life. Second edition. OSCAR J. KAPLAN, Ph.D., editor. IX and 508 pages, including tables and figures, references and index. Cloth. Stanford University Press. Stanford, Calif. 1956. Price \$7.50.

The author has, for his expanded and revised second edition of this well-known work, competent and authoritative contributors like Norman Cameron, Edward B. Allen, the late Eugene Davidoff, George A. Jervis, Franz J. Kallmann, Nolan D. C. Lewis, Benjamin Malzberg, Fred V. Rockwell, Nathan W. Shock and others of equal prominence and scientific standing. They present, in this unique book, a comprehensive text on all aspects of neuropsychiatric involvements in later life. Each chapter, written by an authority in his field, represents a monograph on its subject, completed by a valuable list of references. Of special interest are the chapters on genetic and physiological, and on psychological and sociological aspects of gerontology. The chapters on presenile dementias and on the psychosomatic reaction also deserve special attention. There is little overlapping and remarkable cohesion, seldom observed in a textbook where each chapter is written by a different author. Presentation and print are excellent.

Notehand For Psychologists. By WILLIAM S. TAYLOR. 5 mimeographed pages. Bond paper. 1958. Price 24 cents in stamps to William S. Taylor, 15 Pierce Hall, Northampton, Mass.

Professor Taylor presents, in mimeographed form, a set of abbreviations especially designed for note-taking by psychologists. They are intended to reduce the work of the person who makes notes on lectures or on psychological tests without the assistance of shorthand. The system would be familiar to most newspaper reporters who often devise their own abbreviations. The disadvantage of such personal abbreviations is, of course, that few persons can read each other's. Professor Taylor's note-hand is standardized. It should be a convenience to many psychologists—and to many psychiatrists as well.

Famous Criminal Cases (4). By RUPERT FURNEAUX. 159 pages. Cloth. Roy. New York. 1958. Price \$3.50.

This fourth volume of the Furneaux series covers British murder cases of the year 1956. There were nine cases in which there were arrests or trials. A chapter is devoted to each. The tenth chapter consists of brief notes of 14 murders during the same year, which were unsolved at the time of writing. The outstanding trial of the year is one of great psychiatric and general interest, the trial which led to the acquittal of Dr. John Bodkin Adams of the murder of an aged woman patient in 1950. A number of others are also of considerable interest to psychiatry and general medicine.

CONTRIBUTORS TO THIS ISSUE

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WILLIAM BROWN, M.D. Dr. Brown is a graduate of University and Bellevue Hospital Medical College in 1931. He is now acting chief of the psychiatry and neurology service, Veterans Administration Hospital in the Bronx, and is in charge of the residency training program. During World War II, he was a lieutenant-colonel in the medical corps and was in charge of the neuropsychiatric service of the 219th General Hospital. He is a diplomate in psychiatry of the American Board of Psychiatry and Neurology.

HYMAN S. BARAHAL, M.D. Dr. Barahal, born in 1905, received his M.B. degree in 1930, and his M.D. degree in 1931 at Wayne State University. After interning at Gorgas Hospital, Panama Canal Zone, he began his psychiatric training as an intern at Kings Park (N.Y.) State Hospital in 1931, and was supervising psychiatrist there at the time of entering military service in 1942. During his military service, he was chief of the neuropsychiatric section at Mason General Hospital, the largest army neuropsychiatric unit in service during the war.

Since 1946, Dr. Barahal has been associated with Pilgrim (N.Y.) State Hospital as assistant director and associate director (at present acting director). He has had formal psychoanalytic training at the New York Medical College. He is a fellow of the American Psychiatric Association, and of the Academy of Psychoanalysis, is a member of the Society of Medical Psychoanalysts; and is the author of numerous papers on psychiatric and psychoanalytic subjects. He is associate clinical professor of psychiatry at the New York School of Psychiatry. Dr. Barahal is married, and has a son, 18, and a daughter, 13.

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of Columbia University. He has a D.M.Sc. from Columbia. He served internships in internal medicine and general surgery, and one in neurology and neurological surgery at the Neurological Institute, New York City. He has done research in neurophysiology at the Harvard Medical School and at the College of Physicians and Surgeons. He has been on the consulting staffs of numerous hospitals in the New York metropolitan area, including New Jersey State Hospital at Greystone Park.

CHRISTOPHER F. TERRENCE, M.D. Dr. Terrence has been director of Rochester (N.Y.) State Hospital since 1951, a position to which he was appointed from the assistant directorship of Brooklyn State Hospital. Born in Brooklyn, he attended elementary and high school and St. Francis College there, and received his medical degree from the Long Island College of Medicine in 1931. He interned at Kings County Hospital, Brooklyn, and entered the state service in 1933. He was assistant director at Brooklyn for nine years before he was appointed to the directorship at Rochester. He is an associate editor of this *QUARTERLY*.

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In the latter year, he became associated with the Psychiatric Institute where he became principal research scientist in 1956. He served as a sanitarian with the rank of lieutenant-commander, United States Public Health Service, in 1944 and 1945, and was chief medical statistician of the psychobiological program of the War Shipping Administration during World War II. He is a diplomate of the American Board of Examiners in Psychology, is a fellow of the American Psychological Association, of the American Association on Mental Deficiency and the American Statistical Association, besides holding memberships in numerous other professional organizations.

Dr. Zubin is author or co-author of several books and has been editor, with Dr. Paul H. Hoch, of eight scientific books since 1945. He is associate editor of several psychological journals. Dr. Zubin is married and has two sons and a daughter.

BERNARD WILKENS, M.D. Dr. Wilkens is a senior research psychiatrist at the New York State Psychiatric Institute, New York City, is instructor in psychiatry at the College of Physicians and Surgeons, Columbia University, and is assistant attending psychiatrist at the Vanderbilt Clinic of the Columbia-Presbyterian Medical School. Born in Hartford, Conn., in 1923, he received his medical degree from the Southwestern Medical School of the University of Texas in 1950. He interned at the Cornell division of Bellevue Hospital, and served a residency in psychiatry at the New York State Psychiatric Institute. He was in the army from 1953 to 1955, serving in Germany and this country. He is a research fellow of the New York Academy of Medicine.

SIDNEY MALITZ, M.D. Dr. Malitz is a senior research psychiatrist and acting principal research psychiatrist and chief of the department of experimental psychiatry at the New York State Psychiatric Institute. He has held this latter position since January 1956 when he took over the duties of Paul H. Hoch, M.D., when Dr. Hoch became commissioner of the New York State Department of Mental Hygiene. Dr. Malitz is an associate in the department of psychiatry of the College of Physicians and Surgeons, Columbia University; he is associate attending psychiatrist at the Vanderbilt Clinic, Columbia-Presbyterian Medical Center, New York City, where he is in charge of the psychopharmacology clinic; and he is assistant visiting psychiatrist at the Frances Delafield Hospital, New York City.

Dr. Malitz was born in New York City in 1923 and was graduated from the Chicago Medical School in 1946. He served two years of rotating internships, then became a resident in psychiatry at the Psychiatric Institute in 1948. He was appointed senior research psychiatrist in 1951. From 1952 to 1954 he was in the army, serving as one of four full-time research neuropsychiatrists in the army medical corps—stationed at the Walter Reed Army Medical Center where he was assigned to the neuropsychiatric division of the army medical research and graduate school. He returned to the Psychiatric Institute in 1954.

Dr. Malitz is certified in psychiatry by the American Board of Psychiatry and Neurology. He is a fellow of the American Psychiatric Association, the New York Academy of Medicine and the American Association for the Advancement of Science, besides being a member of numerous other professional organizations. He is author or co-author of a number of scientific publications, many of them relating to the effects of tranquilizers and psychotomimetic agents. Dr. Malitz is married and has two children.

MURRAY GLUSMAN, M.D. Murray Glusman is a senior research psychiatrist in the department of experimental psychiatry at the New York State Psychiatric Institute, and an associate in psychiatry in the department of psychiatry, Columbia University. He is also in private practice as a psychoanalyst. Born in New York City in 1914, he received his medical degree from New York University in 1938. He interned at St. John's Hospital, Long Island City, then trained in neurology at the Goldwater Memorial Hospital, New York City. After service in the navy during World War II, he resumed training in neurology at the New York Neurological Institute, New York City. He trained in psychiatry at the Menninger Foundation School of Psychiatry from 1947 to 1949, returning to the east as a research assistant at Columbia University, at first in neurology, and later in psychiatry. He completed training in psychoanalysis at the Columbia University Psychoanalytic Clinic in 1955 and became a senior research psychiatrist at the Psychiatric Institute the same year. He is a diplomate in both psychiatry and neurology of the American Board of Psychiatry and Neurology, and is a captain in the medical corps, United States Naval Reserve. Dr. Glusman is a member of the American Psychiatric Association, the Association for Research in Nervous and Mental Disease, and other professional organizations. He is author or co-author of a number of scientific papers, many of them dealing with neuropathology and biochemistry.

PAUL H. HOCH, M.D. Dr. Hoch is commissioner of mental hygiene of the State of New York. He is a research worker, and he was principal research scientist in psychiatry at the New York State Psychiatric Institute when he was appointed commissioner of the department in 1955. He was born in Hungary in 1902, and he graduated in medicine from the University of Göttingen, Germany, in 1926. He interned at Göttingen University Hospital and served as an assistant physician there and in Switzerland. He began his career in research at Göttingen, giving up the position of first assistant physician in charge of the out-patient department and of the brain research division of the university clinic to come to the United States in 1933.

Dr. Hoch served for nine years on the staff of Manhattan (N.Y.) State Hospital and was in charge of shock treatment there when he left in 1942 for service with the War Shipping Administration and to be consultant to the United States Public Health Service. He returned to New York state service as assistant clinical psychiatrist at the Psychiatric Institute in 1943, became senior clinical psychiatrist in 1946, and principal research scientist in 1948, holding that position until he became mental hygiene commissioner.

Dr. Hoch is author, co-author or editor of numerous books and scientific papers, including a number of previous publications in this *QUARTERLY*. He is associate editor of *Psychosomatic Medicine* and the *American Journal of Psychiatry*. He has held numerous teaching positions and is now professor of clinical psychiatry at the College of Physicians and Surgeons, Columbia University. He is certified in both psychiatry and neurology by the American Board of Psychiatry and Neurology, is a fellow of the American Psychiatric Association and a fellow or member of various other professional organizations.

EDWARD F. KERMAN, M.D. Edward F. Kerman has been in the private practice of psychiatry in Baltimore since 1945. He originated, something more than a year ago, the three-dimensional projective test based on cypress knees that is the subject of his paper in the present issue of the *QUARTERLY*. A previous article appeared in the January 1958 *QUARTERLY*, and the paper announcing the devising of the test was published in Part 1 of the 1957 *SUPPLEMENT*. His previous publications included a book and a number of scientific articles.

Born in Philadelphia in 1909, Dr. Kerman received his medical degree from the University of Pennsylvania in 1939. He served a general internship, then spent five years as a staff member of Maryland and Pennsylvania state hospitals before going into private practice. He is a diplomate in psychiatry of the American Board of Psychiatry and Neurology, a fellow of the American Psychiatric Association, and a member of the Association for Research in Nervous and Mental Disease and of the Maryland Association of Private Practicing Psychiatrists, as well as of other professional organizations.

RUDOLF B. FREUND, M.D. Born in Breslau, Germany, in 1896, Rudolf Freund attended gymnasium and university there and received his medical degree from Friedrich Wilhelm's-University, Breslau, in 1922. He served an internship at the University Hospital there, was later a member of the staff at the Robert Koch Institute for Infectious Diseases, and in 1925 joined the staff of the Charité University Hospital in Berlin where he became the head of the department for infectious diseases and head of the experimental and clinical laboratories. He is still professor of internal medicine, emeritus.

Dr. Freund did clinical and experimental work and taught internal medicine in Berlin until Hitler's "new order" was instituted, when he left Germany. He did experimental work in tropical diseases and chemotherapy in Holland, and left in 1935 for the Middle East to become consulting physician for the British administration there. He worked and traveled extensively in the Near East and North Africa.

Dr. Freund came to this country in 1947 and joined the staff of Utica (N.Y.) State Hospital where he is now a supervising psychiatrist. He is married to Margaret S. Freund, D.D.S., also a member of the Utica State Hospital staff, and they have a nine-year-old son. Dr. Freund is a member of the American Psychiatric Association and other professional bodies and is past president of the Mohawk Valley Neuropsychiatric Society. He is the author of more than 40 scientific publications.

N. MICHAEL LEVINE, M.D. Dr. Levine, born in Russia in 1903, received his medical degree from the University of Minnesota in 1927. He interned at Minnesota General Hospital, was a teaching fellow in anatomy at the University of Minnesota and later in pathology at the same university. He received an M.S. in anatomy in 1929. He studied in New York City in thoracic surgery in the late 1930's. He has devoted all his time to pathology since 1941, and since 1947 has been director of laboratories and head of the George Alder Blumer Laboratory at Utica (N.Y.) State Hospital.

ARILD FAURBYE, M.D. Born in Denmark in 1907, Dr. Faurbye was graduated in medicine from Copenhagen University in 1932. He did post-graduate work in Denmark and was certified in psychiatry in 1939. He became assistant director at Set. Hans Mental Hospital in 1941, director in 1951.

Dr. Faurbye was treasurer of the Danish Psychiatric Association from 1945 to 1947 and vice-president from 1948 to 1950. He was a founding member of the Collegium Internationale Neuro-Psychopharmacologicum.

He has published several papers, especially on the somatic aspects of psychoses, and is author of a textbook in psychiatry for student nurses and a textbook for psychiatric nurses. His thesis for his doctorate in medicine was on epilepsy.

GORDON TEMPLETON, M.D. Dr. Templeton is director of the Community Hospital Mental Health Clinic at Glen Cove, N. Y. He was born in 1926, was graduated from Union College in Schenectady, N. Y., in 1948 and received his medical degree from the State University College of Medicine at Syracuse in 1952. He interned at Bellevue Hospital, served as an assistant resident in psychiatry at the Payne-Whitney Clinic of the New York Hospital and is now a candidate in psychoanalysis at the William Alanson White Institute of Psychiatry, Psychology and Psychoanalysis, New York City. He has been psychotherapist of the Long Island Consultation Center in Queens, was in private practice for a short time,

and from 1956 to 1958 was post psychiatrist of the Marine Corps School, Quantico, Va., with the rank of lieutenant (M.C.), USNR. Dr. Templeton is a member of the American Psychiatric Association and other professional organizations. He is married and has three children.

VANN SPRUIELL, M.D. Dr. Spruiell is former director of the Mental Health Clinic, Lake Charles, La. He went into private practice in 1956. He has been a candidate in psychoanalysis at the New Orleans Psychoanalytic Society since that year. Dr. Spruiell attended the University of Alabama but received both his undergraduate and medical degrees from Harvard. He interned at Bellevue and served as an assistant resident in psychiatry at the Payne-Whitney Clinic of the New York Hospital. He was a resident in psychiatry at Tulane University from 1955 to 1956 and was a research fellow in psychiatry and child psychiatry at Tulane in 1956 and 1957. He is an associate member of the American Psychiatric Association. He is married and has four children.

JUAN NEGRIN, JR., M.D. Dr. Negrin is a New York City neurosurgeon. He is an associate neurosurgeon at Lenox Hill Hospital, New York City, is attending neurosurgeon at Kings Park State Hospital, and is neurosurgeon for Flushing Hospital. He is consultant at the New York Infirmary, the North Shore Neuropsychiatric Center and the National Hospital for Speech Disorders. He is a diplomate of the American Board of Neurological Surgeons. Dr. Negrin was born in Madrid in 1914. He received his medical degree at the University of Barcelona in 1938. He served a rotating internship in this country, then residencies in neuropsychiatry at Lenox Hill Hospital and in neurosurgery at Kings County Hospital. He is a member of a number of national and international medical, neurological and neurosurgical societies and has been active as an officer in several of them. His previous publications have been in the fields of neurology, neurosurgery, neuropathology and electro-encephalography.

KURT NUSSBAUM, M.D. Dr. Nussbaum, assistant chief of the mental hygiene clinic at the Baltimore Regional Office of the Veterans Administration, is a fellow of the American Psychiatric Association, a member of the Maryland Psychiatric Society, the Association of Military Surgeons, and a service member of the American Medical Association. He received analytic training at the Baltimore-Washington Psychoanalytic Institute. He is also an instructor in psychiatry at the Johns Hopkins Medical School, and a psychiatrist in the out-patient department at the Johns Hopkins

Hospital. His chief endeavor is in therapy, both individual and group. He is particularly interested in the dynamics of schizophrenia, in psychosomatic illness, and in the prevention and treatment of emotional reactions due to the stress of combat and mass disaster.

Dr. Nussbaum, born in Germany in 1909, received his medical degree from the Medical Academy of Dusseldorf in 1932. He interned in Berlin and served residencies in both German and American hospitals, coming to this country in 1936. He has been in the practice of psychiatry since 1939, when he joined the staff of the Philadelphia State Hospital. He was at Buffalo (N.Y.) State Hospital in 1941 and 1942, and from 1942 to 1946 was in the army medical corps, where he achieved the rank of lieutenant-colonel. He has held his present post with the Veterans Administration since 1946.

F. KRAUPL TAYLOR, M.D. Dr. Taylor is consultant psychiatrist at Bethlem Royal and Maudsley Hospital, London, a recognized teacher of London University and a lecturer at the London School of Economics and Political Science. He received his medical degree at the German University of Prague in 1929. He undertook post-graduate studies in Prague, Vienna and Berlin and was consultant physician at Teplitz-Schönau from 1935 to 1939. He was resident at The Retreat, York, England, from 1939 to 1941 and medical officer at Crichton Royal, Dumfries, from 1941 to 1943. He was assistant physician at Netherne Hospital, Coulsdon from 1943 to 1947. He received his diploma in psychological medicine from London University in 1942. Dr. Taylor is a fellow of the Royal Society of Medicine and a member of the Royal Medico-Psychological Association, the British Psychological Society and the British Psychological Association.

R. C. A. HUNTER, M.D., C.M. Dr. Hunter is a clinical assistant at the Royal Victoria Hospital and Allan Memorial Institute, Montreal, and a demonstrator in psychiatry at McGill University. He received his medical degrees from McGill in 1950 and his diploma in psychiatry from McGill in 1951. He served a rotating internship at Royal Victoria Hospital and was assistant resident and resident in psychiatry at the Allan Memorial Institute before becoming registrar of Maudsley Hospital, London, in 1953. He held that position for two years while studying at the London Institute of Psychoanalysis and continued as a student of psychoanalysis when he returned to McGill in 1955.

NEWS AND COMMENT

NEW YORK STATE HOSPITALS TEST OVER 125 NEW DRUGS

A summary of "tranquilizer treatment" in the New York State Department of Mental Hygiene's institutions has been issued by Commissioner Paul H. Hoch, M.D., showing that more than 125 new drugs have been tested or are under study there. Dr. Hoch estimates that 45 per cent of the state's public mental hospital population, or some 40,000 patients, are receiving drug therapy. He notes some two dozen research groups in the hospital system with more than 300 full-time members of the research personnel. Dr. Hoch points out that since 1955 the population of the state hospitals has dropped by some 3,500 patients in spite of rising admissions. His summary notes that 35 per cent more patients are being returned to the community than were returned three years ago.

MEETINGS AND COURSES ANNOUNCED FOR 1959

The American Psychiatric Association will conduct its 115th annual meeting at Philadelphia from April 26 to May 1, 1959.

The American Psychosomatic Society's sixteenth annual meeting will be conducted in Atlantic City on May 2 and 3. One of the three general sessions has been set aside for Professor P. K. Anokin, chief of the department of neurophysiology, Academy of the Medical Sciences, U.S.S.R., who will talk "On the Specific Character of the Activating Influence of the Reticular Formation on the Cerebral Cortex." Special arrangements are being made for the admission of students, interns and other non-members of the society.

The American Psychopathological Association is conducting an international work conference on problems in field studies in mental disorders, February 16 through 19 in New York City. A number of foreign lecturers have been invited. They are: Professors Jan Boök of Sweden, Erik Essen-Möller of Sweden, Aubrey Lewis of England, J. E. Meyer of Germany, Ø. Ødegaard of Norway, Pierre Pichot of France, H. C. Rumke of Holland, E. Stengel of England, Erik Strömberg of Denmark and Drs. E. E. Krapf of Switzerland and Donald D. Reid of England.

The fifth annual Western Regional Meeting of the American Group Psychotherapy Association is scheduled for April 2 and 3 in San Francisco. More than 500 psychiatrists, psychologists, social workers and other professionals in allied fields are expected to attend.

A program for research training fellowships in psychiatry has been announced by the State University of New York Downstate Medical Center. It is open to doctors who have completed three years of residency training

in psychiatry. Applications for the first year have already been considered. The program leads to the degree of doctor of medical science and stipends of \$7,500 are provided for the first year, and \$8,000 for the second. Tuition is \$200 a year. Special consideration will be given by the school's Graduate Program in Psychoanalysis to successful applicants for the research training fellowships.

L. E. BERNARD, M.D., STONY LODGE HEAD, DIES AT 60

Louis E. Bernard, M.D., director of Stony Lodge, a private institution at Ossining, N. Y., died on October 23, 1958 at the age of 60. Dr. Bernard was a veteran of the New York State hospital service and had been on the staffs of both Kings Park and Rockland state hospitals. He had directed Stony Lodge since 1953.

IOWA STATE EXPANDS PROGRAM

The State University of Iowa is expanding its program of psychiatric research and teaching. Charles Shagass, M.D., director of the laboratory of electrophysiology in the Allan Memorial Institute, Montreal, has been appointed associate professor of psychiatry in the department of psychiatry of the college of medicine at Iowa State.

MARIE STOPES IS DEAD AT 78

Dr. Marie Carmichael Stopes, pioneer in the field of birth control and sex education, died at her home in England on October 2, 1958 at the age of 78. Dr. Stopes was a biologist and paleo-botanist. She had a doctor's degree in science from the University of London and one in philosophy from the University of Munich.

IRVING SANDS, M.D., DIES AT 67

Irving J. Sands, M.D., neurologist, psychiatrist and widely-known figure in the field of medical education, died on October 21, 1958 in Brooklyn after a short illness. He was 67 years old. Dr. Sands was a psychoanalyst besides being certified in both psychiatry and neurology by the American Board of Psychiatry and Neurology. He had been associate clinical professor of neurology at the College of Physicians and Surgeons, Columbia University, until his retirement in 1946. He had continued to be active as a consultant in psychiatry and neurology since that time. He was a life fellow of the American Psychiatric Association, a past president of the New York Neurological Society and a member of the American Psychoanalytic Association. He was the author of *Abnormal Behavior* and of *Neuropsychiatry for Nurses*.

LOUIS MONTGOMERY, M.D., FREUD PUPIL, DIES

Louis Montgomery, M.D., a psychoanalyst who was trained by Sigmund Freud, died at his home in Forest Hills, N. Y., following a heart attack, on September 2. He was 62. Dr. Montgomery, a graduate of the University of Chicago, had M.D. and Ph.D. degrees from the University of Vienna. He studied with Freud in that city and was analyzed by Freud. He later studied psychoanalysis in New York City and had been in practice there since 1928, first in Manhattan and then in Forest Hills.

NEW BLONDIE CALENDAR BEING DISTRIBUTED

The fourth edition of the "Blondie Calendar," published by the New York State Department of Mental Hygiene, is now available for distribution. It covers 1959 and 1960. There are 12 pages featuring the famous Bumstead comic-strip family. The department is making limited quantities available free to recognized agencies and organizations in New York State.

ORMAN C. PERKINS, M.D., NEUROLOGIST, DIES

Orman C. Perkins, M.D., professor of neurology at the Long Island College of Medicine from 1927 to 1945, and widely known in New York State psychiatric circles, died at Crawford Notch, N. H., July 28 at the age of 66. He had been on the staff at the Long Island College of Medicine for 26 years.

DR. JOHN WATSON, PSYCHOLOGIST, DIES AT 80

Dr. John Watson, the founder of the behaviorist school of psychology, died on September 26 in New York City after a long illness. He was 80 years old. Dr. Watson was professor of psychology at the Johns Hopkins University in the early years of this century. His book, *Behaviorism*, was first published in 1924 and has gone through many editions since. Sometimes described as a reaction against psychoanalysis, Dr. Watson's teachings are generally considered to deny the validity of unconscious or introspective psychology. His book led to the formation of a separate school of psychology. Dr. Watson resigned from Johns Hopkins to go into advertising in the 1930's.

NEW PRIVATE MENTAL HOSPITAL FOR NEW YORK CITY

A six-story, \$3,500,000, 232-bed hospital for private psychiatric patients is under construction on East 76th Street, Manhattan. It will be known as Gracie Square Hospital and will offer treatment for all types of psy-

chiatric disorders. Unusual features will be day-hospital and night-hospital programs. Leonard Cammer, M.D., will be director and Lothar B. Kalinowsky, M.D., will be chief psychiatrist. The staff will include 14 other psychiatrists.

S. H. FLOWERMAN, Ph.D., PSYCHOLOGIST, DIES AT 46

Samuel H. Flowerman, Ph.D., clinical psychologist and psychotherapist, died in New York City after a long illness on July 30 at the age of 46. He had had psychoanalytic training at the Postgraduate Center for Psychotherapy and was a supervising psychologist there at the time of his death. He was past president of the New York Society for Clinical Psychologists, a diplomate of the American Board of Examiners in Professional Psychology and a fellow of the American Psychological Association. He was the author of a number of scientific articles and was co-editor of the five-volume work, *Studies in Prejudice*.

ESSAY COMPETITION TERMS ANNOUNCED

An essay competition with an annual prize of \$300 in memory of Clement Staff, former editor of *Psychoanalysis*, is being sponsored by the newly-merged journal, *Psychoanalysis and the Psychoanalytic Review*. The prize has been established by the National Psychological Association for Psychoanalysis and the judges will be the board of editors of *Psychoanalysis and the Psychoanalytic Review*. A second prize of \$200 is to be given in 1959 in honor of Emile Durkheim and George Simmel who were born 100 years ago that year. The Staff memorial prize will be for the best clinical or theoretical paper in psychoanalysis or psychoanalytical psychology. The other prize will be awarded for the best paper illustrating the relations between psychoanalysis and any selected aspect of philosophy, religion or the arts.

D. J. McCARTHY, M.D., DIES, AGED 84

Daniel J. McCarthy, M.D., 84, neurologist, former professor of medical jurisprudence at the University of Pennsylvania and a man widely known for contributions to the cause of mental hygiene, died at his summer residence in New Jersey on October 9. He was a former president of the American Neurological Association, and he founded the Philadelphia Institute for the Study and Prevention of Nervous and Mental Disease. He was director of probation for the Philadelphia Municipal Court from 1942 to 1948.

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